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National Association of Sheet Metal Contractors

AMERICAN ARTISAN and Hardware Record

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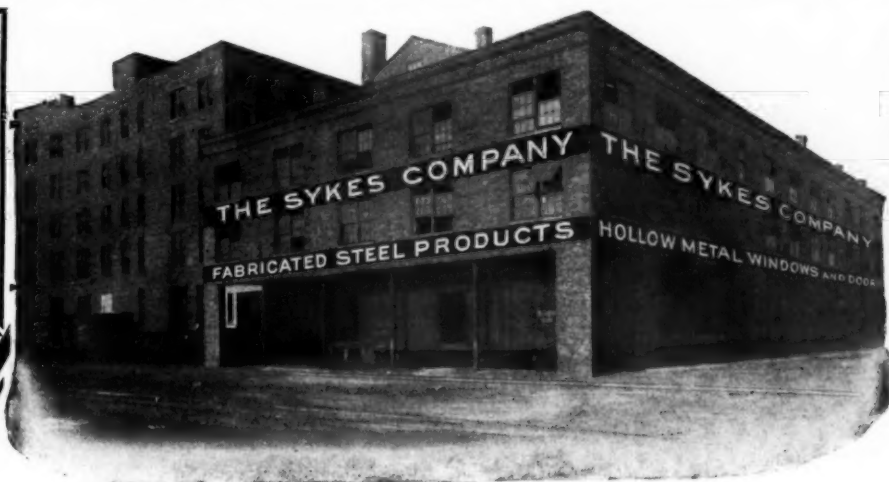
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BLACK
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All our sheets are Prime Quality
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A FEW OF OUR SPECIALTIES

Tanks
Chutes
Hoppers
Spouting
Skylights
Breechings
Ventilators
Smoke Stacks
Elevator Legs



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MORE OF OUR SPECIALTIES

Corrugated Iron
Elevator Casings
Sheet and Plates
Welded Steel Pipe
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Fire Proof Windows
Hollow Metal Doors
Light Structural Iron
Corrugated Wire Glass

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Gilt Edge Furnaces

will stand investigation by heating men who want assured profits with the least "after trouble".

The Profit You Figure You've Made
on a heating installation
is a Real Profit Only So Far
As You Can Keep Away
From "Trouble" Service Afterward

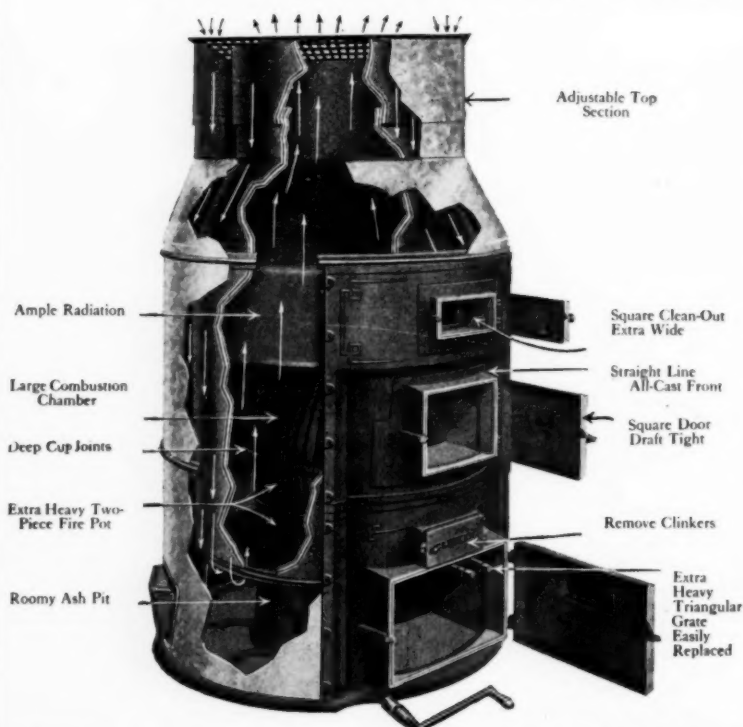
GILT EDGE Hot Air Furnaces

are famous for this freedom from trouble service. It's a comfort to know that you can leave a job after completing its installation and not have to worry about "comebacks".

R. J. Schwab & Sons Co., Milwaukee, Wis.

THE SENATOR PIPE AND PIPELESS

with and without casings and hoods



OUR 1921 exclusive agency proposition is ready. We are now closing with jobbers for connections in various localities in U. S.

Four railroads within 50 yards of our foundry door enable us to make shipments anywhere on short notice.

The price we can quote you will enable you to figure low on competition work. Give your customers a high grade furnace at a low price.

*Write for the details
of our proposition.*

THE WELLSTON MANUFACTURING COMPANY
WELLSTON, OHIO, U. S. A.

FOUNDED 1880
BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Vent-
ilating Interests

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1921 IS REWARDING FIGHTERS

There is going to be a prize fight in New Jersey within the next few weeks between two men who—whatever else may be said about them—are not afraid of “losing something” to make their particular line of business better.

Incidentally also, several millions of dollars will be paid out by people for railroad fares, hotel bills, admission tickets, etc.

What are those things to you?

One of the biggest retailers of musical instruments in Chicago—Lyon & Healy—has increased its sales—in dollars and cents—of pianos by 15 per cent during the five months of 1921, as compared with the same period of 1920. Because of the cut in prices this increase means almost 25 per cent more pianos sold.

What does this mean to you?

Another well known Chicago concern, the retail clothing store of M. L. Rothschild, shows sales of clothing—in dollars and cents—21 per cent over 1920 figures. Actual number of garments sold was nearly 35 per cent larger than last year, because of lower prices in 1921.

Almost any line of merchandise—from luxuries to bare living necessities—shows similar results.

But there is one specific feature in each case where progress is shown.

“In every instance, there was a determination to stimulate business, to locate new prospects, to induce more people to buy.”

Pianos are not articles of necessity. You can get along without them—especially when money is scarce. Yet Lyon & Healy increased their sales.

Clothing can be worn longer in most cases than is usually the custom. Still Rothschild's

sold more suits this Spring than ever in their history.

And yet we hear retailers, wholesalers and manufacturers complain that “people won't buy.”

Millions of dollars are being spent for luxuries, for absolute non-essentials—such as the prize fight in New Jersey.

Still we hear the talk that “people have no money to spend.”

Isn't it about time for you fellows who are repeating these stories about the “Buyers' Strikes” and the “Scarcity of Money” to wake up and realize that the reason for your failure to get business is based upon your own lack of initiative and upon your hanging back in the harness?

These concerns—Lyon & Healy, Rothschilds and thousands of others—who are making progress today, are gaining their progress because they are going after business with vim and vigor.

They are spending money for advertising.

They are speeding up their selling organizations.

They are working out new plans for attracting new trade.

They are not waiting for better times to come.

They are helping the better times to come quicker.

That is why their sales and profits show a gain in 1921 over the business year of 1920.

They are fighters.

They are “going after business.”

“1921 is rewarding fighters.”

Isn't it about time for you to move up into the front rank and do a bit of fighting on your own hook?

Random Notes and Sketches

By Sidney Arnold

My friend Bill Laffin of the Chicago office of Tuttle & Bailey Manufacturing Company condensed about three years of average work into the past twelve months. It is with a clear conscience, therefore, that he started on his six weeks' vacation. I had a postal from him this week dated June 10th, New Orleans, in which he says that his itinerary includes Texas, New York, and Canada.

* * *

It's a joyous old world, after all. Keep your eyes open and you will find enough pleasant things to dispel every gloomy fancy that enters your thoughts.

I am constantly running across pleasant things that make me cheerful from morning till night.

Right now I am glad to chronicle the pleasant news that Arthur B. Glessner of Excelsior Steel Furnace Company, Chicago, Illinois, son of A. W. Glessner, President of the Company, was married Saturday, June 11th, to Miss Florence Valentine.

The happy couple is spending a month's honeymoon on a leisurely trip to Pacific Coast points.

* * *

Notwithstanding the solemn antiquity of the proverb to the contrary, example is not always as desirable as precept.

My friend E. C. Fox of Independent Register Manufacturing Company, Cleveland, Ohio, quotes this appended story to the point:

"Where's Charlie?" asked the head of the house, coming home from work.

"He was very naughty," replied his wife. "I sent him to bed for swearing."

"Swearing?" roared the indignant father. "I'll teach him to swear!" and he rushed upstairs.

For some minutes the indignant parental voice resounded through the house and then Charlie's mother called:

"John, dear. I'm sure Charlie has heard enough for the first lesson."

* * *

The importance of making your meaning clear in advertising and selling can not be overestimated, says my friend E. B. Langenberg of Haynes-Langenberg Manufacturing Company, St. Louis, Missouri.

He cites an illustration as follows:

"Is this the hosiery department?" said the voice over the phone.

"Yes," replied the weary saleslady.

"Have you any flesh-colored stockings in stock?" asked the voice.

"Yes," replied the weary saleslady. "Whaddy ya want—pink, yellow, or black?"

* * *

I owe the pleasure of a laugh to "Josh" Billings of Dearborn Hardware Company, Chicago, Illinois, for this story:

A young man from the country called on a certain great manufacturer in his workshop, and the man of metals and machinery picked up a powerful magnet and said: "That magnet will draw 3 pounds of iron

from a distance of two feet. There is no natural object on the face of the earth that has more power."

"I dunno about that," said the young countryman thoughtfully. "I know a natural object, wrapped in muslin and frills, that is drawing me every Sunday evening over three miles of ploughed fields!"

* * *

Unconscious puns are often the most laughable, says my friend Harry G. Masten, President Lincoln Steel Company, Chicago, Illinois. He relates the following example:

A regimental band was about to be organized at one of the wartime cantonments and, after the first rehearsal, the officer in charge was signing up the candidates.

"Your name?" he asked the trombonist.

"Sam Jones," returned the embryo trombonist.

"Your station?"

"Camp Devens."

"Your rank?"

"I know it," sighed Sam.

* * *

Acknowledgment is hereby made to my friend George H. Dietz of Lincoln, Nebraska, Secretary Nebraska Retail Hardware Association, for the subjoined smile-stimulant:

"Was there much of a gathering to see the ship start?" asked Colonel Edwards, whose servant had been down to the wharf.

"Yassuh. Dey was a monst'ous lot o' folks."

"And was the crowd tumultuous or quiet?"

"Well, suh," replied Mose doubtfully. "Dey wasn't zackly too multuuous, I shouldn't say. Nossuh, dey was just about multuuous enough fo' de occasion."

* * *

A discussion was going on concerning the relative powers of endurance of men and women.

One of the ladies in the party was noted for her frank truthfulness.

When she declared, "We women bear pain better than men," my friend Tom Usher of Russell & Erwin Manufacturing Company, Chicago, Illinois, asked her:

"Who told you that? Your doctor?"

"No," she answered, "my shoemaker."

* * *

The world is far from perfect. But that is no reason for becoming discouraged in the struggle for betterment. For those who falter and grow despondent the following verses of the great American poet, James Russell Lowell, contain a stimulus to renewed effort:

Humanity Sweeps Onward.

For humanity sweeps onward; where today the martyr stands,
On the morrow crouches Judas with the silver in his hands;
Far in the front the cross stands ready, and the crackling fagots burn,
While the hooting mob of yesterday in silent awe return
To glean up the scattered ashes into history's golden urn.

New Occasions teach new duties; time makes ancient good uncouth;
They must upward still, and onward, who would keep abreast with truth;
Lo, before us gleam her camp fires! We ourselves must pilgrims be,
Launch our Mayflower and steer boldly through the desperate winter sea,
Nor attempt the future's portal with the past's blood rusted key.

Oil Cook Stoves Are Graduating from Stage of Short Season Business.

Many Hardware Dealers Are Discovering the Fact That the High Grade Oil Kitchen Range Is in Demand All Year.

There was a time—not so long ago—when the sales of oil burning kitchen stoves and ranges were limited to a couple of months in the early part of the summer.

That time is past.

In some places people start buying them in April and stop in August.

But where the big, real difference is showing itself is in the fact that in many homes the wife uses her oil range all the year around.

There are several reasons for this new development.

Chief among them is the modernization of the average home, by the installation of central heating plants.

Where there is a good warm air furnace there is no good reason for operating a big coal range, for of course the kitchen is heated, and the good house wife doesn't have to arise an hour earlier than her husband to have his breakfast ready by the time he is ready to eat. Now she gets up when he does, puts the coffee pot over one of the burners of her nice oil stove, a frying pan or a griddle on another, and in a short while, the morning meal is ready.

A coal burner is expensive to operate, and when the house is heated with a warm air furnace, there is no real reason for keeping fire going all the time even if the kitchen may also be used as a living room.

So there are many arguments to be cited in favor of the reliable oil burning cook stoves, and the least of these is by no means the fact that it sheds far less heat into the room than the old fashioned coal range.

It is therefore little wonder that sales of oil stoves have jumped ahead by leaps and bounds during the past few years, especially in view of the fact that material improvements have been made in their construction, so that today there is no more danger in operating them than there is in using gas or electricity for lighting—and probably not as much.

But it is important to remember that there are many homes which are not and most likely never will be heated from a central plant, and there will thus always

be a big demand for coal burning ranges, particularly because of the recent successful combination of coal and gas burning models.

So it will not do for the dealer to jump to the conclusion that the coal range is "on its last legs."

But there is this point that he may well consider very carefully:

If his business on oil burning stoves is going to amount to much, he must *push* it, and not be satisfied with the occasional purchaser who drops into his store, because she sees on the sign over his entrance that he is selling stoves and she happens to be looking for an oil stove.

No, he will never sell many stoves that way.

But what can he do then?

In the first place, he should post himself on the kind of heating plants that are used in the residences in his section of the city or in the town where he is located.

If the home is heated by a central plant, such as a warm air furnace, there is a prospective purchaser for an oil cook stove, unless there already is one in the home, and maybe even in that case.

In the second

place, after he has this basic information, he must awaken interest on the part of the housewife in the merits of an oil cooker as against the hot coal stove that she may be using this hot weather.

That means advertising of some kind, such as is shown in the accompanying illustration.

Note the fact that in each instance, the point is emphasized that the "heat is clean." Good idea!

Then comes the follow-up:

Every progressive manufacturer of oil cooking stoves has some well worked plan for cooperating with the dealer on prospects whose names have been secured. It may be in the form of booklets, folders or some other form of printed matter, which should be sent to the housewife.

The trouble with many of these "selling helps" is that they never reach the prospect, but are allowed to



WHEN YOU NEED AN OIL STOVE SEE US



"Clean Heat and Plenty of it For Everything You Cook"
—and it won't bother your pants and pins." That's what any number of housewives—good cooks—who use New Perfection say. And they point at the quick-lighting Long Blue Chimney Burner because it's the big secret of this stove's clean, steady, dependable heat. It means cooler, cleaner kitchens and happier cooks.

NEW PERFECTION Oil Cook Stoves and Ovens
cook and bake anything perfectly, from boiled potatoes to the most delicate cake. It's the stove you read about in the magazine. Three million now in use. Come in and see it work.

We Have a Factory Representative With Us Who Will Demonstrate the New High Speed Cooking Flame Stove on May 28th



Hot Weather Is Coming
Prepare for It

An oil stove is a most economical cooking device. Plenty of intense heat just when you want it. When you have finished your work you turn a button and the fire is out. No heat, no smoke, no bother, clean and cool.

Wire Cloth
for your doors and windows. 12 widths in any quantity you want.

Lawn Mowers—Garden Hose
It's not too late to plant seeds. We have a good stock on hand and can take care of you.

For your Hardware needs set
Savanna Hardware Co.
417 Main Street Savanna, Ill.

It is easy to keep trim and neatly-cool with one of our high quality oil stoves. They bring convenience to your kitchen and are clean and speedy for every cooking purpose.

Come to our store before you buy and inspect our variety of handsome oil stoves—we have one for every size family at a price you want to pay.

C. A. Anderson Hardware

any one using a New Perfection or Puritan Oil Cooking Stove, come in and get a few new ideas.

Mattoon Implement & Buggy Co.
MATTOON, ILL.
217 1/2 WESTERN AVENUE

Typical Newspaper Advertisements of Oil Stoves by Illinois Hardware Merchants.

accumulate dust, either on top of the counter or below it. Thousands of dollars are permitted to go to waste because of the lack of real cooperation or system of following-up.

Sometimes we feel that if the manufacturer would insist on doing the follow-up from his own advertising office and charge a small sum to cover cost of postage and mailing, the results would be far more satisfactory. At any rate, a large portion of the money now spent by him for highly efficient selling helps—efficient if properly used—would be saved.

All this presupposes, however, that the dealer has done some really creative sales work, that he has located prospects to be worked on.

And that is the really important point to this article.

It is up to you, Mr. Hardware Merchant, to *locate and develop* prospects if you hope to share in the great impetus which is now being given to the oil stove business.

If you are going to be content with such sales as happen to materialize without any initiative, without any real creation effort on your part, your share is going to be very small.

Go after this business, while the going is good.

In many cases you will have the field almost to yourself, because your local competitor is asleep on the job.

Don't let him catch you asleep.

Dealer Explains Neosho Plan to Advertising Convention.

One of the instructive topics listed in the program of the convention of the Associated Advertising Clubs of the World in Atlanta, Georgia, June 13th, was the subject of collective retail advertising. This system is generally known as the Neosho Plan.

It was discussed by F. L. Swinehart of Clinton, Indiana, hardware dealer and president of the Wabash Valley Advertising Clubs.

Mr. Swinehart pointed out that through the use of the Neosho Plan, the retailers have learned the importance of stocking and pushing the sale of nationally advertised goods.

He spoke substantially as follows:

"My remarks will be on the towns of the Great Wabash Valley Empire, including eighteen counties, so splendidly named by our Mr. McKeand of the Greater Terre Haute Club.

"This court of inquiry will render an important decision in determining Cooperative Advertising, Neosho Plan, versus Competitive Advertising, No Plan.

"You and every other merchant, or secretary, can be placed on one side or the other.

"I desire to tell you first some important things we have brought about.

"Through an association of Ad Clubs of the Wabash Valley the merchants know advertising is a necessity and an asset, and must figure advertising costs same as rent, light, and labor.

"It is truth in advertising and truth telling in personal salesmanship and by our action and precept we have instilled into the minds and hearts of the buyers the fact that our advertising is truthful and dependable.

"We should think more of tomorrow's satisfaction in service—rather than today's satisfaction in mere sales.

"We have achieved better advertising and we have become better merchants through closer cooperation, striving for better craftsmanship, broader genius, bigger motives for a practical, workable, enforceable definition of professional ethics for a higher conception of advertising as an educational force.

"We know advertising sells goods, buys good will, lowers distribution and production costs, so as merchants, of our particular city, we desire to create in the minds and hearts of the buyers in our community, the knowledge that the business men of the town, as a whole, are standing together.

"In every town of the Wabash Valley employing cooperative advertising, the merchants have learned the importance of stocking and pushing the sale of nationally advertised goods.

"To encourage new customers from a long distance and afford them an opportunity to become better acquainted with the merchants of our town, to really make merchants what they should be, *cooperators in better trade conditions*, and cause them to understand each other's problems in a larger way.

"These things have been accomplished in a large measure in sixteen towns in as many counties in our Wabash Valley, and I wish to say that cooperative advertising not only increases retail sales on special sales day, but by the cumulative advertising thus gained, shows a marked increase in the volume of sales for the entire month.

"A survey was made of the towns of the Wabash Valley as to the business conditions for the months of January, February and March of 1921 as compared with the corresponding months in 1920.

"This survey will show that towns employing the cooperative or Neosho plan for six months, or more, show good increases in the volume of retail sales, averaging 17 per cent.

"It will be shown that towns not employing cooperative or Neosho plan of advertising show a decrease of sales averaging 23 per cent.

"We will show a town whose industries are working full with a normal payroll, but the merchants not employing the cooperative or Neosho plan of advertising, show a decrease in retail sales of 15 per cent.

"It will be shown that a town employing the Neosho or cooperative plan for six months shows an increase in retail sales of 12 per cent, despite the fact that the payroll of their industries are but 35 per cent normal.

"We will show a decrease of retail sales of 24 per cent in a town not employing cooperative advertising whose payrolls from their industries are 55 per cent of normal.

"It will show that towns employing cooperative advertising, and located in purely agricultural communities, without industries, will show an increase in sales of 10 per cent to 21 per cent.

"In every town employing cooperative advertising there has been a revival of the merchants, a more friendly spirit prevails and merchants become co-operators to their fellow merchants and colleagues instead of competitors."

Convention of the Mississippi Retail Hardware and Implement Association Shows Gratifying Progress.

The Service of the Association to Its Members During the Year Ranged from Collecting Accounts to Help in Getting Repairs.

Steady and gratifying progress in the main essentials of association work was clearly evidenced in the brief annual report of Secretary-Treasurer E. R. Gross to the convention of the Mississippi Retail Hardware and Implement Association, which was held June 14, 15, and 16, 1921, in Great Southern Hotel, Gulfport, Mississippi. The following are the chief paragraphs of Secretary-Treasurer Gross's report:

"The activities of the association office have been the ones usually incident to such an office. These may briefly be enumerated as follows: Maintaining records for membership; checking dropped members for hardware insurance which is written to members only; collecting dues; sending out the news letter which gives current happenings, an exchange list and often timely advice from the National office; attending to the correspondence; organizing and carrying out the annual convention and exhibit.

"Statistically, we might report as follows: News letter sent out monthly, 12 copies, approximately 300 sent out each time, making a total of 3,600 copies. An exchange sheet was included with seven issues of the news letter. In round numbers, 1,500 personal letters were written.

"Many requests for information were answered. These include: Assistance in collecting accounts, insurance information, freight audit, freight rate information, finding manufacturer of machinery or equipment to assist in getting repairs, information exchange on checks in Mississippi, store and stock arrangement, advising regarding hardware insurance when stock company controversy came up in December.

"Convention of 1920 was held at A. & M. College. Exhibit in connection was appreciated by the members present and many expressions were heard of a desire that this feature be repeated. The program was adjudged good. Much praise was heard from Captain John W. Gorby's lecture. For this reason, we have more out of state talent this year.

The Executive Committee met at Meridian 10:00 a. m., Thursday, November 4, 1920. Members present were: R. A. Stingley, President, J. E. Hill, J. R. Chambliss and E. R. Gross, Secretary-Treasurer. Business transactions were as follows: Decision made to send monthly report to each members of Executive Committee, to encourage hardware insurance, to try holding group meetings in 1921, committee appointed to arrange for meeting there in July, 1921, if possible."

That no business is satisfying without the constant impulse of a worthy motive was the central theme of an address to the Convention on "The Road to Happiness," by C. M. Johnson, of Rush City, Minnesota.

Mr. Johnson is a successful hardware dealer and preaches the doctrine of cheerfulness in all circumstances. A synopsis of his pleasing address is herewith subjoined.

Address on "The Road to Happiness," by C. M. Johnson of Rush City, Minnesota, Delivered Tuesday, June 14th, to the Convention of the Mississippi Retail Hardware and Implement Association, in Gulfport, Mississippi.

"The subject I am to talk on this morning, is 'The Road to Happiness.' I heard a noted speaker say once that the proper way to make a speech was to have it like a woman's skirt—long enough to cover the subject fully and still short enough to be interesting.

"There are two kinds of people left in America, heroes and zeros; and you are in one class or the other. The fences in this country are all weary with people sitting on them. You are either an optimist or a pessimist. An optimist is a fellow who receives a salary of \$25 a week that proposes to a young lady fond of children, and a pessimist is a fellow that wears both a belt and suspenders. You are either in one class or the other, and I want to put it up to you what you ought to be from now on.

"If you decide that you want to be an optimist, let's go, let's start out now. There is only one slogan for this convention season that is worth carrying home and that is: 'Go home, stay home, wear cotton socks, work like hell and advertise.'

"There are a good many things that make for success—a good many things that make for happiness. It is necessary to have success in order to get happiness and you can't be happy without success. That is the thing we are going to start on this morning.

"1921 will be the biggest and best year you ever had. Today Uncle Sam and Company are in better shape than ever in the history of the world. Columbus discovered America in 1492, the Kaiser didn't discover it until 1917 and we haven't discovered it yet. Columbus discovered America in 1492 and proved the world was round and we sent the boys over to Europe to prove that America was square.

"There is only one thing to do—play the game as America did. America is an organization made up of individuals, and, therefore, could not be perfect because there are no perfect individuals. You can not have a perfect organization made up of imperfect individuals.

"I made the statement that there were no perfect individuals at a meeting once and a little woman got up and said, 'I want to challenge that statement.'

"I said, 'Do you know of a perfect individual?' She said, 'I don't know of one but I have heard of one—my husband's first wife.'

"I can stand up here and preach ideals to you and in the preaching of them I want to tell you I am selfish because I can not help but practice somewhat of what I preach. As America succeeded in her ideals, so will you, by taking these ideals into your makeup, succeed in making happy individuals.

"We do not care for money. Money is not the whole thing. Profits are essential to happiness but they are not the whole thing. Dollars and cents are secondary. What doth it profit a man if he gain the whole world and leave a rich widow? We ought to be working for happiness. Money is one of the factors but it should be one of the minor factors.

"You are selling service and it is only service that pays you a profit. Here is a statement you can not beat: If any farmer in your community knew where and could wait, he could buy the goods as cheap as you can. The only thing you have to sell is service and on service you make your profits and that is where you get your happiness. You don't have to die to go to heaven, you have to live to get there and you cross the border line as soon as you begin doing service for others.

"When I lock my hardware store at night, I can solve the problem for happiness just by the way I go out and walk down the street. If I allow my grouch to pull the corners of my mouth down in front, I look like a grouch, I am a grouch and I have it all over my system. A little dog smells the ptomaine of that grouch and he has a lot of sense—he goes off to a more congenial environment. A human being would come up, pick a scrap with me and I would go home and my little kiddies would crawl under the couch.

"If you haven't will power enough to put a smile on the outside of your face, how do you expect the rest of the community to get decent? The only difference between a grouch and a smile is the way you hold the corners of your mouth. When I smile that little dog sees me in that condition and while he may smell the ptomaine of that grouch around me, he thinks it is some other fellow that went by and his tail wags at the rate of 120 wags a minute."

Gives Good Reason for Revolvers Being Admitted to Mails.

Considerable general interest in the question of firearms has been aroused by the offer of John R. Thompson to pay \$1,000 to anyone who will give one good reason why the revolver manufacturing industry should be allowed to exist in America and enjoy the facilities of the mails.

His offer was made in an advertisement in the *Chicago Herald and Examiner* and reproduced on page 22 of the June 11, 1921, issue of AMERICAN ARTISAN AND HARDWARE RECORD, with appropriate comment.

The first answer received by the newspaper came from John D. Ward, Gary, Indiana, and presented a phase of the question which contains a suggestion for hardware dealers whereby they can increase their business, namely, target shooting. Mr. Ward's letter is as follows:

"Sir—Referring to John R. Thompson's query as to why revolvers are made and allowed the use of the mails, I suppose Mr. Thompson lays his grievance against revolvers to the fact that bandits, murderers and that class use them, but he must remember all revolvers are not used for that purpose.

"We have revolver clubs for target shooting only. Go back over American history and you will find fire-

arms of all sorts made this country what it is today, and firearms will be needed to keep it so for centuries to come.

"I am a law-abiding citizen and can not see why Mr. Thompson would want to bar the manufacture of revolvers.

"The .45 Colts wrote the western history of this country, and I would like for him to get copies of magazines that promote revolver shooting and if he doesn't get to be a booster for the target side of revolvers I'll quit.

JOHN D. WARD."

Gary, Indiana.

Hercules Powder Company Buys Aetna Explosives Company.

Rumors of the proposed purchase of the Aetna Explosives Company, Incorporated, by the Hercules Powder Company received definite confirmation this week when the Aetna stockholders sanctioned the sale of its properties, assets, and business. This marks the culmination of a transaction that has interested financial and business circles for the past two years.

"With the Aetna Company's business, the Hercules Powder Company becomes a much larger factor in the explosives business of the United States," said J. T. Skelly, vice president of the Hercules Company.

"The company is now in a position to compete for business in all parts of the United States, and will be greatly strengthened in important fields which have hitherto been closed to us on account of freight rates from our plants."

Buys Entire Capital Stock of Greenfield Machine Company.

At a meeting of the Board of Directors of the Greenfield Tap and Die Corporation, held Thursday, June 9th, it was voted to purchase the entire capital stock of the Greenfield Machine Company, Greenfield, Massachusetts, manufacturers of cylindrical and universal grinders, and the Morgan Grinder Company of Worcester, Massachusetts, manufacturers of internal grinders.

The combination of the Morgan Grinder Company and the Greenfield Machine Company, together with the machines now produced by the Greenfield Tap and Die Corporation, will constitute the Machine Division of the Greenfield Tap and Die Corporation.

The Greenfield Tap and Die Corporation will operate both plants in their present location, although eventually the Worcester plant will be moved to Greenfield. The personnel of both plants will remain the same.

Incorporates Norwalk Washing Machine Company.

The Norwalk Washing Machine Company, Norwalk, Connecticut, has been incorporated by K. Scully, W. F. Tammany, and F. A. Giorchino. The capital stock is fixed at \$50,000.

Cutting prices is certainly a queer way of increasing profits; and yet it is generally resorted to with that object in view.

*Quick Sales and Good Profits in Garden Tools Gained
With a Bit of Aggressiveness.*

June and July Are Good Months for Pushing Business on Garden Tools, Garbage Cans, etc.

In "hard times" like these, it behooves the hardware retailer to apply every effort he can produce to turn his stock.

And in planning his work for the summer months it is only natural that he should follow the lines of least resistance.

There are items that we are wont to class as "all-year-round" staples, and we also have the very limited seasonable article.

It is with the latter that we are chiefly concerned at this time, for unless garden hose is sold before August first, the probabilities are that it will remain in stock until next summer, and the same applies to lawn mowers, sickles, screen cloth and many other items.

So let us get after some business on these goods—right now. It is late enough, as it is, but better late than never.

If business is dull in your store tomorrow you can spare one of your sales people for a bit of special work on garden hose for example.

Drill him thoroughly first on the various kinds and grades of hose, so that he can answer questions intelligently about quality and price. It isn't enough to tell one than another, and the salesman must be able to tell

Then tell him to canvass a couple of blocks in the residence section. He may not make a single sale his first day out, but if he doesn't he will not be the first one who has made that sort of a record. However, chances are more than even that he will find some one who needs and is willing to buy from him.

Incidentally, if the canvasser is "on the job," he will come in toward evening with quite a fund of information for your "book of prospects," for of course you have such a book, or if you are real up-to-date you will have their names in a loose-leaf file. His notes will tell you that Mrs. Jones on High Street is figuring on buying a washing machine, and that Mrs. Smith on Main Street is pretty nearly to the point where she

will buy one of those better kinds of oil burning kitchen ranges, and so on.

Of course, if you really mean to make him pay out as an "outside salesman" you will give him a special inducement to create sales by agreeing to pay him a commission on such business as he actually turns in. It needn't be a big percentage, but keep in mind that you can safely estimate that at least half of the sales that he makes would never have materialized so far as your store is concerned if he had not called on the customer.

And garden hose is not the only item he would be selling. There will be screen cloth, poultry netting, all sorts of garden tools, garbage cans, etc. A price list

of the various items, showing sizes and grades, is all he needs. You will be agreeably surprised when you come to figure up the sales that he will produce, and you will be more than pleased to have him make his little commission in addition to his regular pay.

Then there is the advertising.

If there ever was a time when advertising paid it is right now—and it is paying.

But it must be of the right kind—the sort that creates a real desire for the

thing you offer; stimulates this desire into a determination to buy the article advertised; that clinches his determination into the decision to buy it from you.

Take a look at the six advertisements reproduced herewith.

Which one would be most likely of these six to produce such a result on you?

What do you want to know about an article you have in mind to buy?

Briefly: Is it well made? Will it render the service I have a right to expect? How much does it cost? Where can I buy it?

Which one of these advertisements answers these questions most completely?

All right, that is the sort of advertisement you must use if you want to secure real, definite results from your advertising.

Keep Your Lawn Fresh
A 1d New With Some of Our




LAWN HOSE

Reels Nozzles
Sprays

Complete Your Lawn Or Porch With
A Fine High-Grade Hammock

Ice Cream Freezers

Are The Thing For Hot Weather.
We Sell the Famous "ARTIC" Freezer
In All Sizes.

F. M. JAEGER
HARDWARE CO.
768 MAIN STREET

STOP! AND CONSIDER THESE WONDERFUL VALUES

PAINT \$2.45 Gal.

Rubber Hoses, guaranteed, 50 feet	\$4.95
Cotton Hoses, guaranteed, 50 feet	\$5.75
Fountain Lawn Sprinklers	.95
5-Prong Cultivators	.95
Telescope Neele Rake	\$2.95
Fish Baskets, size 3	\$2.95
Pail Ladders, 3-foot	.65
Bamboo Trunk Hooks	.65
Electric Tanners, regular \$5	\$2.45
Map Point Electric Iron	\$2.95

Oregon Hardware Co.
 201 Third St. Astoria, Ore. 114 West Main, Seaside, Ore.

ALBRECHT & SONS
HARDWARE COMPANY
125 E. 1st St., Des Moines, Iowa

"Wear-Proof" Try Em
Aluminum
NAILS
Twice
Easier
Ery

Per Case
49c

These offer a good value for the money. They are made of pure aluminum and are twice as strong as ordinary nails. They are also twice as long and twice as wide as ordinary nails. They are also twice as long and twice as wide as ordinary nails.

Crass Hooks

Made of good steel
3 1/2 to 6 1/2

What Stone

Decorative and manufactured stone for covering garden walks and paths. It is made of pure aluminum and is twice as strong as ordinary stone. It is also twice as long and twice as wide as ordinary stone. It is also twice as long and twice as wide as ordinary stone.

Wire Screen Cloth

Best Dutch Screen Cloth. Made of pure aluminum and is twice as strong as ordinary screen cloth. It is also twice as long and twice as wide as ordinary screen cloth. It is also twice as long and twice as wide as ordinary screen cloth.

Prices per Yard

Width	Length	Price per Yard
36 in. wide	10 ft. long	1.00
36 in. wide	12 ft. long	1.20
36 in. wide	14 ft. long	1.40
36 in. wide	16 ft. long	1.60
36 in. wide	18 ft. long	1.80
36 in. wide	20 ft. long	2.00
36 in. wide	22 ft. long	2.20
36 in. wide	24 ft. long	2.40
36 in. wide	26 ft. long	2.60
36 in. wide	28 ft. long	2.80
36 in. wide	30 ft. long	3.00
36 in. wide	32 ft. long	3.20
36 in. wide	34 ft. long	3.40
36 in. wide	36 ft. long	3.60
36 in. wide	38 ft. long	3.80
36 in. wide	40 ft. long	4.00
36 in. wide	42 ft. long	4.20
36 in. wide	44 ft. long	4.40
36 in. wide	46 ft. long	4.60
36 in. wide	48 ft. long	4.80
36 in. wide	50 ft. long	5.00
36 in. wide	52 ft. long	5.20
36 in. wide	54 ft. long	5.40
36 in. wide	56 ft. long	5.60
36 in. wide	58 ft. long	5.80
36 in. wide	60 ft. long	6.00
36 in. wide	62 ft. long	6.20
36 in. wide	64 ft. long	6.40
36 in. wide	66 ft. long	6.60
36 in. wide	68 ft. long	6.80
36 in. wide	70 ft. long	7.00
36 in. wide	72 ft. long	7.20
36 in. wide	74 ft. long	7.40
36 in. wide	76 ft. long	7.60
36 in. wide	78 ft. long	7.80
36 in. wide	80 ft. long	8.00
36 in. wide	82 ft. long	8.20
36 in. wide	84 ft. long	8.40
36 in. wide	86 ft. long	8.60
36 in. wide	88 ft. long	8.80
36 in. wide	90 ft. long	9.00
36 in. wide	92 ft. long	9.20
36 in. wide	94 ft. long	9.40
36 in. wide	96 ft. long	9.60
36 in. wide	98 ft. long	9.80
36 in. wide	100 ft. long	10.00

Poultry Netting

Best Dutch Screen Cloth. Made of pure aluminum and is twice as strong as ordinary screen cloth. It is also twice as long and twice as wide as ordinary screen cloth. It is also twice as long and twice as wide as ordinary screen cloth.

Prices per Yard

Width	Length	Price per Yard
36 in. wide	10 ft. long	1.00
36 in. wide	12 ft. long	1.20
36 in. wide	14 ft. long	1.40
36 in. wide	16 ft. long	1.60
36 in. wide	18 ft. long	1.80
36 in. wide	20 ft. long	2.00
36 in. wide	22 ft. long	2.20
36 in. wide	24 ft. long	2.40
36 in. wide	26 ft. long	2.60
36 in. wide	28 ft. long	2.80
36 in. wide	30 ft. long	3.00
36 in. wide	32 ft. long	3.20
36 in. wide	34 ft. long	3.40
36 in. wide	36 ft. long	3.60
36 in. wide	38 ft. long	3.80
36 in. wide	40 ft. long	4.00
36 in. wide	42 ft. long	4.20
36 in. wide	44 ft. long	4.40
36 in. wide	46 ft. long	4.60
36 in. wide	48 ft. long	4.80
36 in. wide	50 ft. long	5.00
36 in. wide	52 ft. long	5.20
36 in. wide	54 ft. long	5.40
36 in. wide	56 ft. long	5.60
36 in. wide	58 ft. long	5.80
36 in. wide	60 ft. long	6.00
36 in. wide	62 ft. long	6.20
36 in. wide	64 ft. long	6.40
36 in. wide	66 ft. long	6.60
36 in. wide	68 ft. long	6.80
36 in. wide	70 ft. long	7.00
36 in. wide	72 ft. long	7.20
36 in. wide	74 ft. long	7.40
36 in. wide	76 ft. long	7.60
36 in. wide	78 ft. long	7.80
36 in. wide	80 ft. long	8.00
36 in. wide	82 ft. long	8.20
36 in. wide	84 ft. long	8.40
36 in. wide	86 ft. long	8.60
36 in. wide	88 ft. long	8.80
36 in. wide	90 ft. long	9.00
36 in. wide	92 ft. long	9.20
36 in. wide	94 ft. long	9.40
36 in. wide	96 ft. long	9.60
36 in. wide	98 ft. long	9.80
36 in. wide	100 ft. long	10.00

ALBRECHT & SONS
HARDWARE COMPANY
125 E. 1st St., Des Moines, Iowa

[illegible]

NOW
Is The Time To Buy
YOUR LAWN-MOWERS and GARDEN TOOLS
G. E. FITZGERALD
87 West Main St. Bel's 934-W

GARBAGE CANS

Keep the refuse from being all over the place.

No house or yard can be clean when garbage, old tin cans and the accumulations of a house are left or thrown about.

Keep all such matter in a sealed can, a can with a lid which keeps flies and germs from circulating.

Just the thing for the garage to keep the oily waste and dirt in, as well as the junk which usually accumulates.

You will also find a full line of rakes, shovels, hoes, etc., at the

Central Hardware Store

Samples of Advertisements Used in Illinois, Iowa, Kentucky, Michigan and Oregon to Induce Purchases of Garden Tools and Kindred Articles.

thing you offer; stimulates this desire into a determination to buy the article advertised; that clinches his determination into the decision to buy it from you.

Good Ideas for Window Display

*Practical Lessons from Exhibits in AMERICAN ARTISAN
AND HARDWARE RECORD Window Display Competition.
How to Get More Passers-By to Come into Your Store.*

DISPLAYS NATIONALLY ADVERTISED GOODS.

Two things suggest themselves in connection with the display of nationally advertised goods shown in the accompanying illustration of a window exhibit designed and arranged by E. Balineau for Sumner Company, Limited, Moncton, New Brunswick, Canada.

The first is the value of highly decorative effect in

At some time or other, every prospective customer who stops to look at this exhibit has read the selling arguments in favor of this razor.

Such prospective buyers may not have paused to analyze the logic of the various selling appeals in the different advertisements of this safety razor which they have read in newspapers, magazines, and other periodicals.

In fact, it is quite likely that only a comparatively



Window Display of Nationally Advertised Goods Designed and Arranged by E. Balineau for Sumner Company, Limited, Moncton, New Brunswick, Canada.

focusing attention upon commodities in a store window.

The second is the arresting power of a trade name which is kept before the public through every medium of publicity.

In linking up a window display with a comprehensive and continuous general advertising campaign, the dealer has the advantage of all the preliminary selling work of the manufacturer.

The particular safety razor which forms the material of the display under discussion is probably the most extensively advertised thing of its kind in existence.

small fraction of the reasoning set forth in each advertisement has made a lasting impression.

But the impressions have been repeated so persistently that they have a cumulative effect.

The result is that, without being distinctly aware of the extent of the knowledge which they have already acquired of this product, they actually know so much about its qualities that very little effort is required to close the sale when they come into the store, as a consequence of seeing actual goods in such a display as that here under consideration.

In other words, the dealer who ties up his window with nationally advertised goods gets the benefit of an immense selling force which, as far as the particular goods are concerned, is equivalent to a big addition to his own staff of sales folk.

One of the many commendable virtues of this window display is its freedom from excessive detail.

Intelligent use is made of the manufacturer's advertising helps but there is no profusion of objects clamoring for attention of the observer.

Indeed, this display is an exceptionally good example of a one-idea window exhibit.

Not only did this display attract a great deal of favorable attention but it was the means of increasing the sales of the goods to an unusual degree.

Henry C. Wallace Instigated Manufacture of Rust-Resisting Fence Wire.

An incident is related of Henry C. Wallace, the new Secretary of Agriculture, which identifies him with the iron and steel business in an interesting way.

Several years ago the readers of the farm publication of which he is editor made complaint of rapidly rusting fence wire. Henry C. Wallace put their problem up to the Department of Agriculture, the same as he would have done in case an inquiry had come regarding a mysterious disease among livestock. Instead of a sick hog, it was a case of sick steel.

The readers wanted to know why the wire fences they put up did not last like the old-fashioned wire fences their fathers had put up before them. Rust seemed to be playing havoc. The government metallurgists at Washington asked for specimens of old fence wire which has resisted corrosion, along with samples of the new fence wire which had rusted so rapidly, for the purpose of comparison and analysis. Young Wallace spent one whole week gathering the samples of old iron wire fences, some that had stood so long that the wooden cross bars had rotted away.

The specimens which he sent on to the Department of Agriculture at Washington were analyzed by the department metallurgist, and a bulletin was issued calling attention to the fact that modern rapid practice in steel making had left the metal full of impurities, as compared with the old-fashioned hand-made iron, and that the presence of these impurities caused the rapid corrosion of the new fence wire.

As a result of this little bulletin issued by the Agriculture Department, the manufacture of pure iron on a commercial scale was successfully undertaken, and the product not only applied to wire fences, but also to the different forms of sheet metal, where rust resisting iron is an essential economy.

The Department of Agriculture made a notable contribution to the science of metallurgy in this discovery of the reason why steel and iron rust, and it is a matter of interest that Henry C. Wallace, who sent the first samples of rusted fence wire to Washington and thereby opened up this important investigation, is today heading the Department.

In selling goods it is of importance that the clerk should know what to say, but it is of as great importance that he should know when and how to say it.

Trade Opportunities in Foreign Lands.

The Bureau of Foreign and Domestic Commerce through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

34991.—A commercial agent in Italy desires to secure an agency on commission for the sale of iron tools and utensils. Quotations should be given c. i. f. Leghorn or Genoa. Reference.

35001.—A mercantile firm in Italy desires to purchase and to secure a general agency for the sale of twist drills and tools in general. Quotations should be given c. i. f. Leghorn or Genoa. Payment to be made against documents. Reference.

35005.—A mercantile company in the Maltese Islands desires to purchase and to secure an agency for the sale of aluminum kitchen ware, etc. Quotations should be given c. i. f. Maltese port, in sterling. Terms: Cash against documents. Reference.

Coming Conventions.

National Retail Hardware Association, Louisville, Kentucky, June 20, 21, 22, and 23, 1921. Herbert P. Sheets, Secretary, Argos, Indiana.

Sheet Metal Contractors' Association of Ohio, Hotel Gibbons, Dayton, Ohio, July 19, 20, and 21, 1920. William J. Kaiser, Secretary, 123 East Chestnut Street, Columbus, Ohio.

Michigan Sheet Metal Contractors' Association Annual Outing, Grand Rapids, Michigan, July 29 and 30, 1921. Frank E. Ederle, Secretary, 1121 Franklin street, S. E., Grand Rapids, Michigan.

Kentucky Hardware and Implement Association, Jefferson County Armory, Louisville, Kentucky, January 24, 25, 26, and 27, 1922. J. M. Stone, Secretary-Treasurer, Sturgis, Kentucky.

Michigan Retail Hardware Association, Hotel Pantlind, Grand Rapids, Michigan, February 7, 8, 9, and 10, 1922. Arthur J. Scott, secretary, Marine City, Michigan.

Retail Hardware Doings.

Illinois.

Beecroft and Company, Chicago, has increased its capital stock from \$2,500 to \$10,000.

Iowa.

Albert Bengé, senior partner of the hardware firm of Bengé and King, has sold his interest in the store to Roy King who will manage the business alone at Winterset.

Frank J. Drilling of Rock Rapids has sold his hardware business to E. J. Riegel who has already taken possession.

Kansas.

Edward P. Brown has bought out Al G. Wright's interest in the Wright-Brown Hardware Company at Anthony. Mr. Wright will continue to travel for the Wyeth Hardware Company of St. Joseph, Missouri.

Kentucky.

The Howard Hardware Company, composed of William Howard, of Richmond, and Logan Howard of Paris, is now under the new management at Carlisle.

Minnesota.

Roy Smith will open a hardware at Norcross soon.

Missouri.

Ben Reeves of Ridgeway has sold out his hardware business to Walter Bartlett.

The Douglas Hardware Company has purchased the Leader Building on the corner south of the Bank of Atchison County at Rock Port, and intend to make this store into one of the most attractive hardware and implement stores in the county.

New York.

Jeffry and Spath have opened a new hardware and appliance store at the corner of Columbia and Washington streets at Utica.

North Dakota.

J. P. Breslin's hardware store at Sanish has been destroyed by fire.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

An uncommonly good example of talking straight to the prospective customer is furnished by the advertisement of Chown Hardware Company, which is herewith reproduced from the *Portland Journal*, Portland, Oregon.

The first line of this copy tells the whole story.

"Be your own handy man!" is the sort of suggestion which is received without the slightest antagonism.

All normal men like to work with tools.

The Chown Hardware Company not only offers a pleasing suggestion in the title line of this advertise-

Be Your Own Handy Man!
Save Labor Costs by Going After Things Needed Repairs Yourself
Use Efficient Tools. Here Are a Few Tool Specials:

16-oz. MAYDOLE CLAW HAMMERS, regularly \$1.50	\$1.18
12-oz. AUTOMOBILE HAMMERS	76c
12-oz. Golden Press Ball-Bearing BRACER, regularly \$4.95, special at	\$3.37
12-oz. COMBINATION SQUARES, regularly \$2.50	\$2.42

CHOWN HARDWARE CO.
"Where Prices Are Hammered Down" 222 MORRISON, NEAR FIRST

ment but strengthens it by the argument that the householder will save labor costs by doing the needed repairs himself, using efficient tools.

There is just enough illustration in the advertisement to stir the imagination.

* * *

As far as the text is concerned, the advertisement of the Yakima Hardware Company, reprinted herewith from the *Yakima Republic*, Yakima, Washington, leaves little to be desired.

Indeed, it would be difficult to find more appropriate adjectives to describe aluminum ware than "suitable, serviceable, sensible, sanitary."

Moreover, there is an unmistakable tone of sincerity in the sentence which follows, saying to the prospective customer:

"You will like every article you see in our new house furnishing department."

The advertisement could be improved, however, by selecting two or more typical articles of alumi-

"CHEER UP" (Elks' Musical Review)
ALUMINUM WARE
Proves the Most
Suitable Serviceable Sensible Sanitary
You will like every article you see in our new house furnishing department.
The New Round Oak Chief Three-Fuel Range is Now on Display—See It!

Retail Department Phone 401 Come In

Yakima Hardware Co.

num ware and giving their prices.

There is room enough in the space of the advertisement to do this, as it measured $4\frac{3}{8}$ by $5\frac{1}{4}$ inches in the original.

* * *

The neighbors are all talking about prices.

Some of them are finding fault with the retailers because prices are not going down fast enough.

There isn't much logic in the talking.

It is inspired more by desire and

The High Mark

—on—

Hardware and Implements Seems to have been passed.

We are getting quotations of from 10 to 20 per cent declines on quite a few articles in our line.

"And We Are Doing This"

marking our goods to the lower prices, regardless of what they cost us. We have all got to take a loss in this price readjustment, and we are not going to hesitate in taking our full share.

We want your business in our full line and will make prices as low as the lowest. **QUALITY CONSIDERED.**

Hunting Co.

"The place to get your money's worth"

other emotions than by calm analysis of economic conditions.

However, it is a stubborn fact that the popular mind is now exercised by the thought of prices.

Therefore, it is good advertising

policy to appeal to that particular state of mind.

This is done effectively by the Hunting Company, Rockford, Michigan, in the advertisement herewith reproduced from the *Rockford Register*, of that town.

The Company tells the public that it is working down its goods to lower prices regardless of what their original cost was.

It assures the people that it is taking a loss on this price readjustment.

The advertisement gives an impression of sincerity and is sure to act favorably upon both customers and prospective customers.

As published in the *Rockford Register* this advertisement occupied a space of $8 \times 6\frac{1}{2}$ inches.

* * *

Don't Dodge Statement of Prices.

Just why it should take a commercial crisis to demonstrate the value of advertising and to justify price, is by no means clear.

Cost is the big word with the advertiser himself.

Usually it is an even bigger word with the consumer.

Tell him everything on earth about your stuff and when you get through he will ask you one question and only one:

"What does it sell for?" He likes to see that question answered in the advertisements, if only as an evidence of good faith.

The reader, as a rule uninitiated into the subtleties of modern publicity, is wont to assume that an advertisement is printed to furnish information, not to conceal it.

In ordinary fairness to the consumer, if for no other reason, he ought to be told what he will have to pay for the thing he is urged to buy.

Cost means as much to him as it does to the manufacturer or the retailer.

The American Society of Heating and Ventilating Engineers Holds Semi-Annual Meeting in Cleveland.

Air Conditioning in Its Bearing upon Ventilating Systems and Problems in Centrifugal Fan Design Were Among Papers Read.

From a professional point of view, it may be said that unusual values were presented to the delegates who attended the semi-annual meeting of the American Society of Heating and Ventilating Engineers which was held June 14, 15, 16 and 17, 1921, in Cleveland, Ohio.

Many of the papers were of a technical nature and intended for the benefit of those who are thoroughly versed in the higher mathematics and science of heating and ventilating engineering.

Certain general observations and data, however, of

ly to circumstances which probably had no bearing.

"Just what is meant by air conditioning? For the purposes of this discussion, one can take it to mean the treatment to which atmospheric air is subjected for the purpose of so regulating its temperature and humidity, that it will produce given variations of moisture contents in a given material.

"Everybody knows that practically all materials exposed to moist air will absorb moisture, and conversely, that practically all materials exposed to dry air will lose moisture. This merely means that most materials are hygroscopic by nature, and absorb or release moisture in proportion to the moisture contents of the air surrounding them. This I might say in passing, is actually the basis of drying. When a substance contains more moisture than it should contain, it is subjected to air which will absorb the excess and bring down the final contents of the material to the required point.

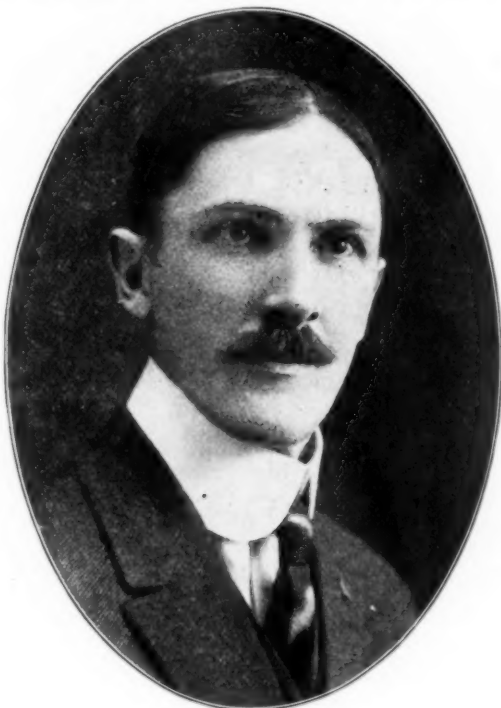
"You have all noticed on a cold, clear winter's day the difference in temperature as felt by the body, between shade and sunshine. The air itself is just as cold under one condition as under another. You have all, riding in a railroad car in the winter time, passed by the large fires of ties or lumber often built up by the rail side, and have felt the sudden gust of heat that passed through the closed window. You have all seen the luminous electric radiators and felt their warmth at a distance, even though the room in which you were, was cold and remained so. This heat in each case is the result of the arresting of a non-transmitting, non-reflecting solid body, of vibrations similar to those of light given off by the radiating body—the sun, the fire and the heated coil."

Another paper presented at the semi-annual meeting in Cleveland gave the results of studies of "Some Developments in Centrifugal Fan Design," by F. W. Bailey, of Buffalo, New York, and A. A. Criqui, Buffalo, New York, from which the following extracts are taken:

"Up to about twenty years ago all centrifugal fans were of the straight radial blade type. Since that time the multiblade forward-curved blade fan, combining as it does higher efficiencies (in commercial sizes) and smaller space for a given capacity, with equal or lower first cost, has almost entirely supplanted the older type of fan.

"In making this substitution, however, two very good characteristics of the old radial blade fans were lost. One of these was the pressure curve which rose continuously with a decrease in capacity and the other was the power curve which increased constantly with increasing capacity.

"This combination, in the forward curved-blade fan, of the pressure curve which droops or even only flattens with decreasing capacity within the working range



Casin W. Obert, Secretary, American Society of Heating and Ventilating Engineers.

several of the papers were sufficiently free from technicalities and plain enough for general instruction.

Owing to the widening range of sheet metal work, many contractors find themselves under the necessity of knowing something about the principles of ventilation apart from their bearing upon warm air furnaces.

Connected with ventilation to some extent is the question of "Drying As An Air Conditioning Problem," which was treated by A. W. Lissauer of New York City. Among other things Mr. Lissauer said:

"Unfortunately, I might say, the art of drying is known by everyone. There is probably no manufacturer or engineer who has not at least once tried his hand at designing dryers. As a matter of fact, the drying art is almost in the class with the jack-of-all trades. Everyone knows so much about it that actually very little is known except to the initiated. It is supposed to be the simplest branch of all heating and ventilating, and this supposition has come down through the ages, the failures having been accredited consistent-

of the fan, with the power curve which has a more abrupt rise as the load increases, is sometimes the cause of serious trouble in fan installations. The flat portion of the pressure curve makes the fan very sensitive to resistance variations and if used at a capacity corresponding to this portion of the curve may make the fan run under or over the estimated capacity. This is particularly so if the friction of the system is slightly greater or less than was estimated or if an existing duct system is changed with a consequent change in resistance.

"With a directly connected unit, when a fan which has an abruptly rising power curve, runs above the estimated capacity there is a decided danger of overloading the motor. With a motor driven forward curved blade fan run at this critical point in its range, it is necessary to supply an excess of motor power with the probability of running the motor at reduced capacity and therefore reduced efficiency, to guard against a possibility of the fan overloading. This represents a perpetual insurance payment to protect the motor when using a forward curved blade fan under these conditions. The old radial blade fan with its steep pressure curve was more self-adjusting to conditions and would vary but slightly from the desired capacity and power when the resistance proved different from that estimated.

A plea for better air distribution in ventilating systems was made by J. R. McColl of Detroit, Michigan, who said "for many years ventilating engineers have been designing systems on the basis of thirty cubic feet of air per minute per individual, particularly in business for school buildings. This seems to have originated in the idea that the carbon dioxide must be kept down to ten parts in ten thousand, on the old theory that ventilation was mainly a matter of maintaining a proper degree of purity of the air.

"The old theories of ventilation have been supplanted by a belief that ventilation in schools, churches, theatres and the like, is mainly a matter of getting rid of body heat. Therefore if the air supplied in ventilation and the room itself could be entirely free from bacteria, dust and odors, the question of ventilation would be reduced practically to that of getting rid of body heat, assuming, of course, that the air is free from obnoxious, poisonous or other injurious gases not classified above.

"For a good many years, the system which we have been using in Detroit schools has been a combination of the Gravity and Projection Systems. Although the larger part of the heating has been done with direct radiation in what might be called a Modified Split System, a portion of the heating has been done with warm air in order to get the stratifying effect. The inlets have been placed sufficiently low and equipped with special diffusers so that some disturbance of the air at the breathing level is constantly induced by the velocities of the incoming air. The results from this system have been highly satisfactory, but the high cost of sheet-metal work for the individual ducts to each room have made a continuation of it prohibitive and we are now using the Projection System, by simply using six special ceiling diffusers for each class room, and doing all the heating with direct radiation.

Marries After Twenty Years of Courtship.

After serving an apprenticeship to Cupid of twenty years courtship, Charles G. Watrous of Double Blast Manufacturing Company, Waukegan, Illinois, was married June 16th to Miss Anna Thomas of Waukegan. He declares that his bride is worth waiting a life-time to win and he is supremely happy in the outcome of his long courtship.

Wise Furnace Company Produces Pipeless Warm Air Heater.

Five special features characterize the new "Wise" Pipeless Warm Air Heater which is now being produced by the Wise Furnace Company, Akron, Ohio. They are: The cellular gas and smoke consuming fire pot; easily or semi-self-cleaning radiator; improved type of grate; double feed door; and adapted for either pipe or pipeless installation.

The claim is put forth that this warm air heater successfully consumes soft coal of the very poorest grade as well as hard coal, lignite, and wood. Even slack can be profitable burned, it is said, and the fire in spite of this will be kept clean.

The construction of the furnace proper is identical with that of the well known Wise Warm Air Heating System.

Great care is taken by the Wise Furnace Company to give the utmost satisfaction to householders in the use of this Wise pipeless and thus build up good will for the dealer.

Full particulars of this product may be obtained by writing to the Wise Furnace Company, Akron, Ohio.

Announces Committee on Warm Air Furnace Research.

With the intention of keeping up the good work already done, President I. L. Jones of the National Warm Air Heating and Ventilating Association, has appointed the following committee on Warm Air Furnace Research:

P. J. Dougherty, Chairman, International Heater Company, Utica, New York; E. S. Moncrief, Henry Furnace and Foundry Company, Cleveland, Ohio; E. B. Langenberg, Haynes-Langenberg Manufacturing Company, St. Louis, Missouri; F. W. Phelps, Moore Bros. Company, Joliet, Illinois; F. R. Still, American Blower Company, Detroit, Mich.; R. W. Menk, Excelsior Steel Furnace Company, Chicago, Illinois; and Roy E. Lynd, Richardson and Boynton Company, New York, New York.

W. E. Lamneck Company Increases Capital to \$350,000.

W. E. Lamneck Company, Columbus, Ohio, manufacturers of Simplified Furnace Fittings, have applied for amendment to their charter by which their capital stock will be increased from \$240,000 to \$350,000.

The Company have recently perfected a machine for the manufacture of one-piece stove pipe elbows, by which they state that it is now possible to produce not only a larger quantity in a given time, but also a very much improved article.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

PATTERNS FOR FURNACE BOOT.

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

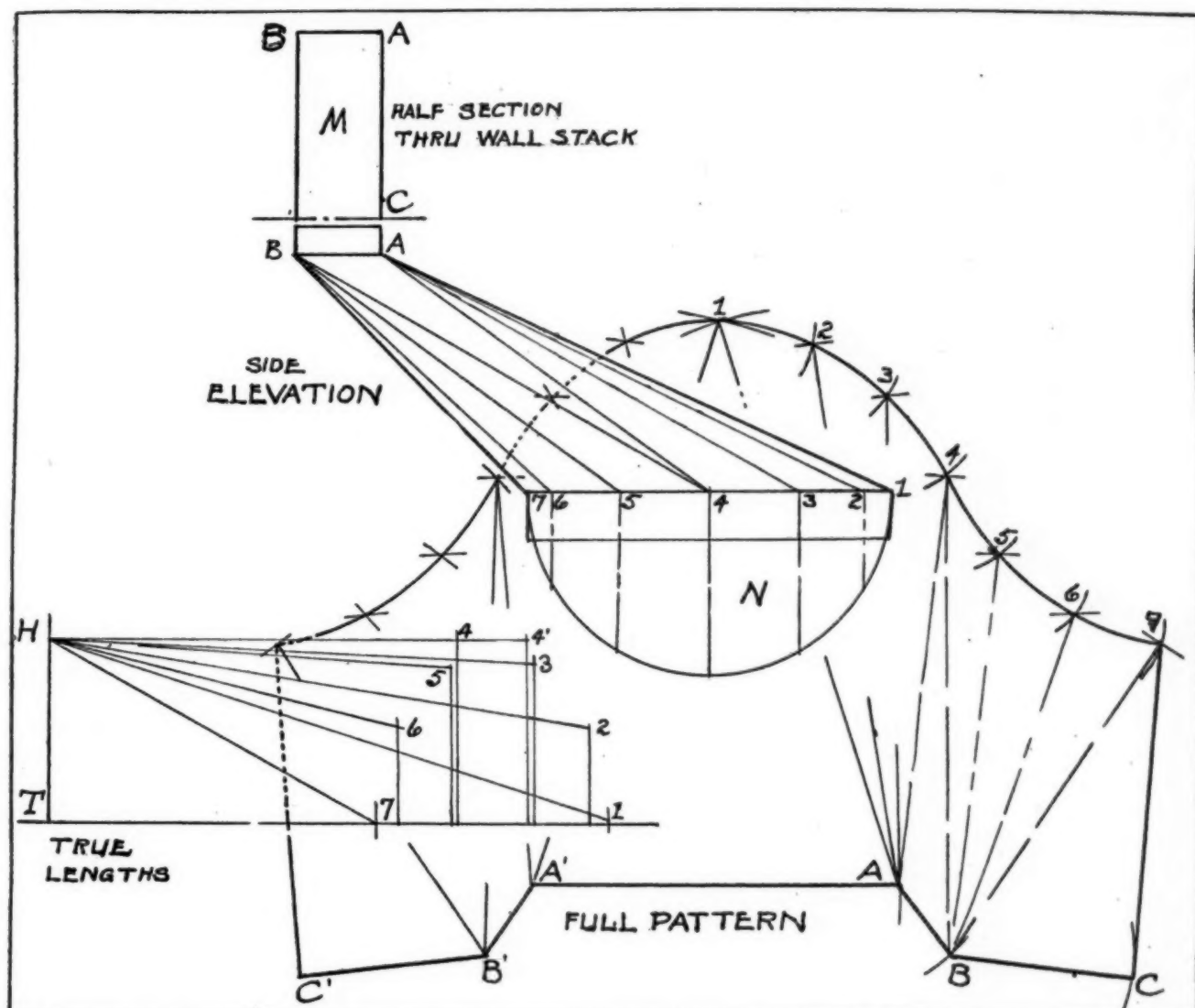
Mr. Gus Scheipering of Quincy, Illinois, asked about a furnace boot, according to sketch attached submitted and the layout is as follows:

First draw the side elevation making the off-set B-7

and square lines to the base 1-7, which gives points 2-3-4, etc. By drawing lines to the corners A and B, you thereby divide the elevation into triangles.

To set out the true lengths we draw a right angle as H-T-1. Make H-T equal to the half of the width of wall stack or in this case, equal to A-C of section M.

Now pick the lines from elevation as A-1; A-2; A-3; A-4; also B-4; B-5, etc., and set on horizontal line T-1.



Patterns for Furnace Boot.

or A-1 any desired angle or length you wish. Then draw sections M-N.

Section M is for the wall stack and is made to suit the standard size pipe used, while section N is used for the leader pipe and diameter is made to suit.

Observe both bases as A-B and 1-7 form parallel lines, so that no miter is developed.

Divide the section N in any number of equal points

From each of these points, erect lines to equal those half sectional lines in M.

This gives points 2-3-4-5-6 in true lengths. Draw lines to the point H and you have the true lengths.

To set out the pattern, draw a line as A'-A equal to twice the length A-C of M. Now pick true lengths H-1 and using A and A' as centers, strike and cross arcs in point 1.

Then pick the girths space as 1-2 on the circle of N and using the new point 1 in pattern as center, strike small arc 2.

Then pick true length H-2 and using A as center, cross arcs in point 2.

Next strike small arc 3 and cross this with line H-3. Repeat this with point 4.

After this pick the line A-B of elevation and using A in pattern as center, strike arcs as at B. Then pick true length H-4' and using point 4 in pattern as center, cross arcs in point B. After this repeat the triangling method until points 7-C are established.

We should say, that 7-C of pattern is equal to B-7 of elevation. Laps for joining collars must be allowed extra.

Sheet Bronze Statue for American Legion Made by Friedley-Voshardt.

The artistic possibilities of sheet metal are graphically exemplified in the beautiful product of the Friedley-



The Spirit of the American Doughboy.

Voshardt Company, Chicago, Illinois, shown in the accompanying picture.

This statue is named "The Spirit of the American Doughboy." It is life size, being six feet high, and accurately proportioned. Vigor, enthusiasm, courage, and daring are typified in every line.

The statue was designed by E. M. Viquesney, of Americus, Georgia, and sculptured by Paul Mohrman of Friedley-Voshardt Company.

This design has been selected by the American Legion as their official statue. The choice was made from a number of designs that had been submitted in competition.

In addition to this wonderful example of sheet metal art, the Friedley-Voshardt Company has also manufactured a great many products illustrating subjects of the great war.

Those who have the interest of trade development at heart should lose no opportunity to bring to the attention of the public this sheet metal statue of the Spirit of the American Doughboy and point out that it is a proof of the wide range of artistic as well as useful application of sheet metal.

Opens Sheet Metal Shop.

The Tenney Tinning and Spouting Company of Peninsula, Ohio, has opened up a place of business on the first floor of the Alva Morris Confectionery store. This is the only business of its kind at Peninsula and is operated by Mr. Tenney, who has been in business in Akron for a number of years.

Ederle Tells About Plans for Michigan Outing.

None of the members of the Michigan Sheet Metal Contractors' Association sleeps during the daytime at



Frank E. Ederle, Secretary Michigan Sheet Metal Contractors' Association.

present. Whatever spare time any one of the members has is devoted to preparations for the annual outing of the organization which is to be celebrated in Grand Rapids, Michigan, July 29 and 30.

Not only have the various committees actively in charge of the plans for the outing no time for slumber during the day, but scarcely enough time for meals, according to the following report of progress from Frank E. Ederle, secretary of Michigan Sheet Metal Contractors' Association:

"Charles Heth, general chairman of the Annual Outing which is to be held in Grand Rapids, July 29-30, is keeping his various committees exceptionally busy these days making arrangements for the entertainment at this event.

"The sports committee reported at the last meeting that the league baseball grounds had been leased for the 30th. As these grounds are located at Reeds Lake they should answer the purpose very nicely. When Pierson and several other well known traveling men become overheated they can go and jump into the lake.

"Jim Shouldice of Battle Creek and Bill Schweitzer of Flint are already lining up baseball teams for this occasion and it is rumored that Saginaw, Grand Rapids and Detroit are also doing some quiet practicing in preparation for the big games. It is now certain that there will be at least four games besides the other usual sports.

"Mrs. Harry Martin of Lansing, who won the baseball throwing contest last year, is going to have some real competition this year, as we understand about fifty ladies expect to enter this event.

"The many friends of Mrs. Frank Daly of Jackson will be pleased to learn that she is slowly recovering from her recent severe attack of pneumonia. It is thought she will be able to leave the hospital in a few days."

Organizes Sheet Metal Works.

With a capital stock of \$30,000, the Samaron Sheet Metal Works, New York City, has been incorporated by P. Rosenberg, A. Somerfield, I. S. Matlaw and M. C. Levine, 119 Nassau Street, New York City.

National Association of Sheet Metal Contractors Hold Greatest Convention in History of Trade.

Sessions Are Likened to a Post-graduate Course of Practical Instruction in Mechanical and Commercial Phases of Craft.

The annual meetings of the National Association of Sheet Metal Contractors which preceded the great convention of that organization held June 14, 15, 16 and 17, 1921, in Fort Pitt Hotel, Pittsburgh, Pennsylvania, may be compared to the grades of grammar school if studied in relation to this year's gathering.

The sessions which were held in Pittsburgh were in effect a post-graduate course of instruction in the commercial and mechanical departments of the craft. Never before in the lifetime of the Association has so much practical knowledge and guidance been condensed into the sessions of an annual convention.

The power of collective purpose in lifting the trade to higher levels of achievement was unmistakably demonstrated in all the proceedings of the convention.

No single sheet metal contractor, be he ever so enthusiastic, can hope to accomplish what is being brought to pass through the Trade Development

Committee as well as through the general activities of the National Association of Sheet Metal Contractors. Thanks to the unified effort of the officers and members, the sheet metal trade has acquired the dignity and influence of a business second to none in opportunities and possibilities.

Tuesday, June 14, 1921.

The opening session of the convention was called to order in convention hall, Fort Pitt Hotel, by Louis Luckhardt, Chairman of the Convention Committee. After community singing of the national anthem, "America," an address of welcome was delivered by the Honorable E. V. Babcock, Mayor of Pittsburgh, to which an appropriate response was made by National President Arthur P. Lamneck.

George W. Cartwright, State Senator of California, addressed the convention on the topic of "The World's Greatest Blunder," in which he placed special stress upon the importance of a well defined understanding of civic duties and patriotism.

After the appointment of committees and the report of the Convention Committee by its Chairman Louis Luckhardt, the first morning session of the convention

closed with a brief discussion of topics presented through the Question Box.

Tuesday afternoon's session began at 1:30 o'clock with a report of Credentials Committee, after which followed the annual address of President A. P. Lamneck, the full text of which is herewith reproduced.

Annual Report of A. P. Lamneck, President of the National Association of Sheet Metal Contractors, Delivered June 14, 1921, to the Convention in Pittsburgh, Pennsylvania.

"One year ago at Peoria it seemed to be the general opinion that we were at that time in one of the greatest periods of adversity that our membership had ever seen.

"We were then in a condition of labor shortage, material shortage, and other conditions which made the sheet metal contractor feel that he ought to be in some other line of activity. Within six months after that date we have had an absolute reversal of conditions, and we have new conditions to meet which some of us might be influenced to say were worse than the conditions one year ago. These circumstances, of course, are a natural result of the world war, and are a matter of history. It might, however, be well to refer again to conditions in the past, briefly, in order that we may get a little better idea of what to expect in the future.

"During the war we had all the business we could do, and we also made a fair profit on what we did. Labor also received high wages which causes them to be careless and independent with productive capacity reduced to about 30 per cent of normal.

"All of us, because of our increased buying power, started on one of the greatest periods of extravagance that the world has ever seen. This epidemic continued until the Government restricted credits to such a point that practically all non-essential industry was denied credit. From this time on readjustment started and has continued up to the present time with the end not yet reached, but from present indications we have reached the bottom in some lines, and are now on the upward grade.

Promote New Construction.

"The business condition affecting our industry has to do with the home and particularly new construction. We all know that there is a great shortage of homes throughout the entire country, and our association should be for everything which will eliminate the things that tend to hold back new construction.

"Let me be more specific. First, freight rates must be reduced. There is probably no line of activity which is so affected by freight rates as the building line. Let us consider the following example. The raw material required to manufacture 2,000 pounds of sheet steel is as follows:



President A. P. Lamneck.

Ore	1.62 gross ton
Coke95 net ton
Limestone79 net ton
Pig Iron85 gross ton
Scrap	1.04 gross ton
Coal	2.24 net ton

"Total weight 15,882 pounds of raw material required to produce 2,000 pounds of finished sheets, which equals:

12.64 per cent product.
87.36 shrinkage.
Accumulated freight 1914.....1257 cents per ton
Since August 26th, 1920.....2628 cents per ton
Increase1371 cents per ton

"You will readily see that the accumulated freight based on 100 pounds of sheets is \$13.31 per 100 pounds or 26 per cent of the total car load price today. When you take into consideration the increased labor cost in the above product, together with the enormous freight item, we can not reasonably hope for any further reduction in this material until the above items are reduced. This same condition applies to all material used in building construction.

Wage Reductions.

"Second. Wages in the building line must be reduced in all cities, and I am pleased to say they have been in some communities.

"Third. Where we have working agreements with the union we should attempt to have these agreements expire January 1st instead of May 1st, as they do now. The reason for this is most building activity is delayed until wage agreements are settled.

Indicates Increase of Business.

"Reliable reports show that for the first three months of this year in twenty-five states, building contracts have actually been awarded to the amount of \$376,630,900 which amount was only exceeded by two years since 1910, namely, 1918 and 1920. Of this amount \$127,734,100 was for residence property alone. These figures should raise our hopes to a great extent, because if this continues the last half of this year should be a busy one for us indeed.

"Our association, the past year, no doubt will show the greatest gain in its history, which is due to the help and cooperation of our members. One of our aims should be to continue this growth.

Exchange of Visits.

"Last year it was suggested at Peoria that the various locals should exchange visits to bring about a better feeling, and also to assist in every way to enthuse the various locals. This was carried out with very beneficial results. These visitations should continue until some better method is devised to take its place.

"There are quite a few of our members who get practically no benefit from our association. This condition has caused your President quite a lot of thought, and I have not been able to devise any system which would eliminate this objection without causing the expenditure of a large amount of money.

"The Ohio State Association endeavored to hire a paid secretary during the past year, but have not as yet been able to put it over, because some few of our members did not think it should be done. I believe, however, that every state who could afford to should have a paid secretary who could devote all his time to the benefit of the State Association and its members.

Warm Air Heater Legislation.

"During the past year some of our Western members attempted to have legislation passed by various State Legislatures on the subject of warm air heating. This program was opposed by the manufacturers of furnaces for selfish reasons and defeated temporarily, and at their Cleveland Convention they passed the following resolution:

"Be it Resolved, that the National Warm Air Heating and Ventilating Association affirms its belief in the advantages of warm air heating as the most healthful system known of warming and ventilating homes and other buildings; and that the growth of the industry will materially promote health and safety in the nation.

"That the National Warm Air Heating and Ventilating Association is heartily in favor of raising the standards of the industry, and preventing practices which are in any way dangerous or unhealthful.

"That to this end it will approve of Legislation or Codes which prohibit unsafe practices, provided such laws or codes are the results of thorough engineering research checked by practical experience; but it is opposed to all discrimination by laws between different types of heaters, accessories or methods of installation, it being recognized that many variations in design and engineering of installations must exist as the result of varying experience and opinion, and that to standardize them by law would tend to check invention and progress.

"That the National Warm Air Heating and Ventilating Association is earnestly in favor of raising the standards of knowledge and practice among installers of warm air heaters, but that it is opposed to laws which would attempt to restrict the installation of warm air heaters to those licensed by the state or municipality believing that such a system would prohibit many contractors of sound practical knowledge of the art, but not of technical education, from carrying on their trade, and thus tend to monopolize the industry; and that it is opposed to laws or codes which practically undertake the engineering and inspection of each installation by states or municipalities, thus entailing large expenditures both by the public and by individuals with no proportionate gains.

"That the Legislative Committee, working with Professor Willard and proper committees of the American Society of Heating and Ventilating Engineers, the National Association of Sheet Metal Contractors, and other interested bodies, prepare a code acceptable to all interested parties and protective of the interests of user, installer and manufacturer."

"The time has arrived when we should have a committee on the question of legislation for furnace work to work with a like committee from manufacturers and heating and ventilating engineers to consider not only the question of legislation, but also to consider the method of manufacturers of furnaces and other sheet metal lines in disposing of their product through unrecognized channels.

Salesmen's Auxiliaries Are Great Help.

"Another development during the past year has been the formation of Salesmen's Auxiliaries in several states. This is a wonderful help to our association and we should encourage them to the utmost of our ability.

In conclusion I want to thank the officers of our association who have served with me, for the help and cooperation they gave, and also to thank all members who in any way assisted our organization to become a bigger and better medium for our members to broaden and prosper.

"Last but not least, to the Trade Journals we will be ever grateful for their help and advice as I am sure without their assistance we would not be where we are today."

The growth of the Association in numbers, power, and service was interestingly set forth in the annual report of Secretary Edwin L. Seabrook. The substance of his report is as follows:

Report of Secretary Edwin L. Seabrook to the Convention of National Association of Sheet Metal Contractors, June 14, 1921, in Pittsburgh, Pennsylvania.

"This has been the greatest year, from every standpoint, the Association ever had. Its membership increase has been more than satisfactory—it has been remarkable. Almost from the day the Peoria convention adjourned it has been steadily rising and there is every indication that it will continue. This remarkable increase really began last year when the plan for organizing the state associations proved so successful. The organizing of a state association developed active workers, and these were anxious to have local associations formed in their own cities.

It is gratifying to report that every attempt to organize a state association this year has been highly



Secretary Edwin L. Seabrook.

successful. This refers particularly to the calling of a convention to organize. Sentiment was sounded out in three states, but the encouragement received did not warrant the calling of a convention. The matter of organizing in these states is held in abeyance, not abandoned; neither must the work already done in these states be considered a failure. When the trade in these states realize what is being accomplished by other state organizations, sentiment will undoubtedly crystalize in favor of a state association.

"Our organization work and plans do not end with the association year—cut off short, as it were—but are continuous. Plans are under way for forming from three to five state associations the coming year.

"The three state associations formed during the winter of 1920 are doing splendidly. Each has grown in membership and influence. Each held a state convention during the winter months and early spring. Indiana takes the lead in this respect with a three days' convention, which, in attendance, exhibits, etc., rivaled some of our national conventions.

"Four state associations have been formed since the last convention; namely, Iowa, Maryland, Texas

and Missouri. In the first two the initiative was taken by national headquarters. In Texas the San Antonio local took the first step, while in Missouri the initiative was taken at the Illinois State convention when the salesmen, traveling in Missouri, organized an Auxiliary and decided to form a state association for themselves and also for the sheet metal contractors.

"In each case the plan of the National Association was used in calling the convention, which was held under the auspices of the National, and one or more National officers were in attendance. These four state associations are doing well. Iowa held a well-attended convention three months after the state association was formed.

Local Associations.

"If the number of state associations organized is gratifying, the number of locals that have been formed is equally, or more so. Some of these are the direct result of state association work. It is hoped that the others that have come in will form the nucleus for a state association. The locals that have joined during the year are:

"San Francisco, California; Alameda County, California, which includes the city of Oakland; Akron, Ohio; Shreveport, Louisiana; Easton, Pennsylvania; Dubuque, Iowa; Indianapolis, Indiana; Lancaster, Pennsylvania; Richmond, Indiana; Waterloo, Iowa; Kankakee, Illinois; Quincy, Illinois; Lafayette, Indiana; Terre Haute, Indiana; South Bend, Indiana. Fifteen in all.

"Reports reach this office as this is being written that locals have also been organized in Ft. Dodge, Iowa; Houston, Texas; Marion, Indiana.

"All the above-named locals, except the first three, are the direct result of state association work. The National was very much gratified to receive the San Francisco local into its membership after it had duly considered the matter. With the Alameda County following San Francisco in National membership, the influence of the National Organization is extended along the Pacific Coast.

Membership Increase.

"The membership increase is as follows:

New locals	204
Individuals, State Associations.....	151
Old locals	159
Individual members, National.....	30
Knoxville, Tenn., reorganized.....	8

Total received during the year..... 552

"From this must be deducted for resignations, retiring from business, dropped for one reason or another, 66, making a net increase for the year, 486.

"The largest local is Indianapolis with 65 members. St. Louis with its two locals has the largest membership, 85.

"Membership in the National individual class is 234, which is a slight decrease from that of a year ago, due to transferring this class of membership to state and local associations which have been organized.

Visitation.

"At the Peoria convention last year National President Lamneck recommended that every local association, so far as possible, be visited by a National officer. In working out the plan this was modified to have local associations, or delegations of same, visit other locals.

Visitations were assigned to locals and the scheme proved most successful. These visitations gave an opportunity for members to exchange ideas, working plans, methods, etc. There was a general expressed desire to have these visitations repeated this year. What might be termed a district convention was held by the Camden and Cape May, New Jersey, locals, which held an afternoon and evening meeting for all the firms in South Jersey. This was well attended and it was decided to hold such meeting quarterly. It is hoped this will develop into a state association before another year.

Salesmen's Auxiliary.

"Special mention and a great deal of commendation must be given the Salesmen's Auxiliary of the various states for the splendid work they have done in increasing the membership in the state organizations. Too much can not be said of this organization for the assistance that it has rendered during the past year. It has been suggested that a National Salesmen's Organization be formed and this ought to meet with favor among the salesmen.

"The Peoria convention instructed your Secretary to take up two specific lines of work:

"First—The collection of data for the Labor Committee. This will be given in the report of the Labor Committee.

"Second—Filing a protest with the National Fire Protection Association against the classifying of composition roofings with metal roofing as an equal fire risk; also requesting the National Fire Protection Association for a reclassification, giving to sheet metal its proper rating as a fire resisting material. Correspondence with the National Fire Protection Association developed the fact that it had nothing whatever to do with ratings and could be of no assistance to us in this respect. Efforts to secure a better rating for tin roofing had just been made by a tin plate manufacturer who stands high in the counsels of the National Fire Protection Association, but without avail. These efforts were exhaustive, being carried to the Underwriters' Laboratories in Chicago.

Committees.

"The committees of the National Association have been faithful in their work during the year and their activities will be seen in the various reports. It should be noted that committee work this year has been a prominent feature in making this Association year the remarkable one that it has been.

General Condition.

"From the foregoing it must be evident that the condition of the National Association and its state and local organizations is excellent. Members of the sheet metal industry are asking to affiliate, and from now on we may look for substantial accessions to the membership without the strenuous efforts necessary in the early years.

"I wish to express my appreciation for the assistance given by our National President, Arthur P. Lamneck, the other officers and directors, state and local secretaries, together with many of the members. Space forbids making special mention of a long list of those who have assisted and encouraged during the year.

"The outlook for the future is most encouraging.

The membership is united and harmonious. The number taking an active interest is rapidly increasing. The local associations, which form the basis of state and national membership, are more active than ever, lethargy is becoming less and less and not a single one is reported this year as having ceased to exist.

"We can now be numbered among the big national trade organizations. The high personnel of the membership needs no comment. These and a most honorable and useful record for sixteen years can surely make us optimistic and serve as an incentive for greater accomplishments for the coming year."

The report of the National Treasurer Julius Gerock disclosed a satisfactory condition of the finances of the organization.

Following Treasurer Gerock's report came an address on "Building Construction and Vocational Training," by Professor Clifford G. Dunnells, Carnegie Technical School, who declared that "everywhere

there is great need for more education, education of a kind which will reach the masses, education which will broaden the vision and increase the possibilities of every individual.

"As the general intellectual level is raised," he affirmed, "there will be more peace and harmony and a larger recognition of individual responsibility. It is ignorance that is responsible for a large part of the dissatisfaction and discontent which have been so evi-



Treasurer Julius Gerock.

dent in recent months.

"I am a firm believer in vocational education. I believe every apprentice in every trade should be required to take a vocational training apart from his work in the shop or on the job. Instructions given by foremen are often done carelessly and usually unsystematically. Satisfactory instruction should be given by men trained as teachers, by men who have a broad vision and who are interested in the student for the student's good. In vocational education intellectual development has been too often sacrificed for the physical as expressed in dexterity with which the student performs his task."

Professor Dunnells advocated an educational program which, he said, "should not concern itself with the closed or open shop, with union or non-union labor, collective bargaining, or industrial democracy. The chief objective should be to teach causes and effects, to supply the necessary technical information, and to give the basic principles of industrial economics."

Peter Johnson of Peoria, Illinois, was scheduled on the program of the convention for an address on "Apprenticeship," but he was taken very seriously ill at the hotel and his place on the program was filled by W. J. Keist, of West View, Pennsylvania, who gave a talk on the same subject.

A more elaborate and deeply instructive essay on the

subject of Apprenticeship was delivered to the convention by L. Broemel of Peck, Stow and Wilcox Company, Southington, Connecticut. The principal parts of his address are as follows:

Synopsis of Address on Apprenticeship by L. Broemel of Peck Stow and Wilcox Company, Southington, Connecticut, Delivered to Convention of National Association of Sheet Metal Contractors, June 14, in Pittsburgh, Pennsylvania.

"I am greatly impressed over the consideration your worthy organization is giving to a question of vital concern for advancing the progress of the sheet metal industry.

"I am glad that we recognize not too late our future as it is held in the sheet metal apprentice's trust depending how much enthusiastic force is put behind our educational program we will go down in future history either as men of leadership or as men of little power and of extreme selfishness.

"What you are now feeling as a lack of efficient workers in your craft as becoming daily serious—the Peck, Stow & Wilcox Company realized this just ten years ago. And I am here to tell you that the subject of sheet metal working for the school shop was demonstrated as practical in this great city—first Carnegie Institute, then followed by your public schools.

"I am also sure things will now start as a result of this convention for again placing the city of Pittsburgh in our industry's history. Your problem as I gather and see it being worked out concerns the apprentice.

"I wonder, however, if you have ever given thought to our problem of sowing the seed to grow apprentices.

"May I ask what has wet the mechanical thirst of the young man to have selected sheet metal work for his life's vocation?

"The reason does not concern us now so much as the systematic method to be pursued to the cultivation of sheet metal working as a tasteful vocation for the American boy before he is out of his teens and to deal with this problem we have got to strike the backbone of our American vocational schools.

"As you may know the metal branch of the National Hardware Association held their annual meeting at Cleveland only a short time ago.

"I was glad to be at that meeting to have observed that the seriousness of this educational movement is at last appreciated by all of our industry's leaders.

"My address of thoughts on the matter fits in so nicely with this occasion that I feel sure you will like to have me repeat here my views as conveyed to our Industry's Manufacturers and Jobbers at that meeting.

"Now that the keynote has been sounded I ask that we lay aside prejudice and devise ways and means for coming together as brothers in arms fighting side by side for a just and serious cause. There has been division of faction already too long. Let us have action concertedly on the part of each and every principal on whom the sheet metal industry has a bearing.

"What good work you have already effected as it concerns the apprentice can go on without interruption.

"However, let us not overlook a younger department which might be covered by a committee on vocational

education whose duty it would be to work with your committee on apprenticeship.

"I now hope from the following remarks you will grasp the score of the program I am suggesting to have consideration given to.

"In the beginning of the remarks that will follow I am directing my talk to the sheet metal jobber manufacturer.

"However, for the present put yourself in his place as I will lead up to a big issue that will prove whether manufacturer, jobber or sheet metal contractor, the one is helpless without the other.

Importance of Adequate Equipment.

"Whether you are sheet metal jobber or manufacturer and whether the metals of more greatly vital interest be tin plate, galvanized iron, zinc, copper, brass or aluminum these metals in their fabricated form are worthless, they have no value in the many good uses in which they can be employed unless the sheet metal craftsman is given tools and machines to cut, shape, and form those materials for ultimately bringing them to a perfection representing some sheet metal thing and when in their finished stage only can they first commence to be of real value to mankind.

"Therefore, I can correctly state, if you do not understand the practical application of tools and machines to the metals you sell or manufacture, while it must be generally admitted that we can not be experts in all lines and things in connection with this industry you, however, can not be excused if up to this time you have not manifested some interest in the history of the manufacture of tools and machines for sheet metal work which paralyzes with the history of the sheet metal industry.

"I have in mind an example now of a fellow to whom we recently have shipped a power elbow making equipment. Follow with me this splendid outfit of machines and as now installed in a modern shop. The season is coming to a close when those elbows must be finished and ready for fall buying. This fellow contemplates making up a good many thousands of elbows which will consume many bundles of iron. Well? what is the matter? You say he has the equipment, send him down to us we are overstocked with iron. Friends, here is the big trouble: It is unfortunate that a man can not be found to superintend and show the old-fashioned tinsmiths in that shop modern manufacturing methods with the aid of time saving equipment and as a consequence that shop is idle.

"This illustration, therefore, clearly points out your interest as it should manifest itself is in the early replenishment of the craftsman first, equipment second, and sheet metals last.

"I have endeavored to point out that your problem at this moment as it concerns a future generation is not in any educational program for advancing the adoption of any certain materials as best suited for a specific purpose, but our most vital consideration is first, the American boy; second, the cultivation of his mechanical tastes, and last an education in the specifications of all metals as each may be better adapted to a certain use.

"I say again and I want to be heard in this assertion based on observations covering a wide field and as

coming from one who has made a survey and having given careful study to our educational institutions, that was not in any way instituted because wood is now and the promotion of wood working in the school shop will in the future make for a big industry. Wood working in the school shop was not introduced because wood workers and carpenters were fast dying off. The school boys' tastes for wood working as a trade was not cultivated because the trade offered wages higher than in other crafts. But woodworking was introduced as a first consideration to wood being an inexpensive material over iron for foundry practice and steel for forge work, and therefore followed with a cooperation of the combined interest of the woodworking tool and machinery manufacturers and lumber, paint and varnish industries when a forced enthusiasm and interest in woodworking spread until now it is not necessary to cover further what you already are aware of.

Pioneers in Industrial Training.

"We are justly claiming credit as the pioneers in the furtherance of sheet metal work as an industrial vocation for the school shop. In ten years we have spent many thousands of dollars in advertising and for sending missionaries into the schools of our country for demonstrating the value of this subject to our school principals and supervisors. We have exhibited at every important educational convention. We used the initiative, we put it over and didn't ask you to contribute a dollar.

Only a Few Schools Teach Sheet Metal Work.

"Where today a small percentage of schools are teaching sheet metal working, there must be over one thousand, yes, and perhaps two thousand schools teaching woodworking. We are living in a steel and not a wood age and it would prove inexcusable if our associations of intelligent merchants and manufacturers of so wide experience in the affairs of the sheet metal industries would be unable with combined forces to put over our demands.

"However, I want to add that all selfish motives in any greed for profit in work of an educational kind must be cast aside. Understand, I do not infer that we are suggesting to give equipment or materials away. Advertising is expensive and now as before the only revenue we have to draw on to back up any educational program is derived from our profits—and further I do not infer that you as the dealer should sacrifice your legitimate profit when offering our tools and machines to the schools.

Need of Harmony in the Work.

"Unison and harmony must be enforced and then from all these interested agencies mentioned men should be elected to serve on a committee of education and give up ungrudgingly their time when the sheet metal industry will not die but will live on and on.

"It will be only a few years at the most when we will be called to leave this planet. Are we going to leave behind us history of a great industry which started promising and early became stagnant and possibly corrupt admitting a lack of leadership and intelligence for promoting big things?

"It is not fair to throw this educational burden on the machinery manufacturer. It is not right to tax theterne plate maker. It is unjust to ask the manufacturer of sheets to stand alone in this undertaking. The zinc,

copper and aluminum manufacturer could not be expected to contribute alone in this work and the jobber now so burdened with selling expenses hardly could financially bear the burden of an educational movement national in scope. The poorest of all these, the sheet metal contractor, would perish for lack of resources if he alone endeavored to cover so far reaching and tremendous a work.

"But band all these forces, employ all these agencies you will have accumulated rich resources and men of power and influence that no government, politician, political organization, school board member, school supervisor or professor would dare to stand in the way of our progress if it is a true fact that the sheet metal industry is unable to find future relief for its educational problem through no other better channel than the vocation public schools of the United States in which you and I are citizens and tax payers."

Following Mr. Broemel's scholarly discussion of Apprenticeship came the report of the Warm Air Furnace Committee by its Chairman E. B. Langenberg of Haynes-Langenberg Manufacturing Company, St. Louis, Missouri.

The report consisted of two parts, one a résumé of the happenings during the past year and the other recommendations for the future.

Digest of Report of Warm Air Furnace Committee Delivered by Its Chairman E. B. Langenberg, June 15, to the National Association of Sheet Metal Contractors, in Pittsburgh, Pennsylvania.

"A joint committee of representatives of this Association, the National Warm Air Heating and Ventilating Association, the Western Jobbers' Association and Manufacturers, was formed to draw up a Code covering the installation of warm air furnaces. This committee met three times in Chicago, and finally drew up a Code, which it was hoped would meet the approval of the manufacturer and installer. On the final approval of the Code by the committee, it was decided to make an effort to have it introduced in as many of the State Legislatures as time would permit. Some of the Legislatures were then in session, and the committee realized that to delay action, would but postpone the matter for another two years.

"The initial attempt was made in the State of Nebraska. Immediately opposition was encountered as a few manufacturers objected to that part of the Code which provided for the licensing and examination of the installer.

"The lack of a definite organized effort to have this Code made a law was the cause of the failure which finally resulted.

"It was also planned to introduce the Code in the Illinois Legislature, but the failure in Nebraska and the fact that opposition was becoming stronger by these few manufacturers caused the matter to be dropped. Further efforts along this line were temporarily abandoned.

"In Minneapolis an ordinance was introduced by the Building Commissioner, which would practically bar the use of warm air furnaces in the heating of garages. This matter was called to the attention of the chairman of this committee and opinions from Dean W. R. Allen of Pittsburgh; Prof. A. C. Willard of the University of Illinois; and Prof. W. S. Ohle of Washing-

ton University, St. Louis, were secured and forwarded to Mr. Jaines of Minneapolis. The result of this effort was that the ordinance was changed to include the use of warm air furnaces. When the local city council finally passed the ordinance they failed to remedy the very thing the law was intended for, and, as it now stands today, is a danger to the community.

"Joplin, Missouri, has an ordinance that is giving the sheet metal men trouble. Sioux City, Iowa, is also having its troubles with a local ordinance.

"The National Warm Air Heating and Ventilating Association through its Research Committee, which is working with the University of Illinois, has made some wonderful progress during the past year. The work there has reached the stage where in a very short time the actual testing of heaters can be undertaken.



First Vice-president Frank B. Higgins.

"The bulletins being issued by the University of Illinois on Warm Air Furnace Research, should be read by every installer for although a great part of them are technical, still they have a direct bearing on our business and will stimulate original thought.

"This Association believes that furnace installation will never be elevated to its proper standard until some simple and reasonable law is enacted in each state, which law shall be so worded as to compel furnace installers to have at least a rudimentary knowledge of warm air heating and warm air furnaces; and also worded so as to compel owners to so construct their buildings, that the furnace may be properly installed.

"This Association believes that the time for action along this line has long since arrived, and that we call upon all furnace manufacturers to rally now to the support of those who are endeavoring to secure just and reasonable furnace legislation."

Tuesday afternoon's meeting ended with a general discussion and talks on subjects presented through the Question Box.

In the evening at 8:00 o'clock, a get together meeting and entertainment was held in Convention Hall, Fort Pitt Hotel, for visiting delegates and their ladies.

Wednesday, June 15, 1921.

The morning session began at 9:30 o'clock with the report of the Labor Committee, a synopsis of which is herewith given:

Report of Labor Committee to Convention National Association of Sheet Metal Contractors, June 15, in Pittsburgh, Pennsylvania.

"Your Committee feel that the membership would be better served if it gives a few fundamentals rather than enter into details regarding wage rates (as these are rapidly changing) in various sections of the country.

"On the surface the present labor situation as it affects the sheet metal trade, and the whole building industry, for that matter, appears to be a contest between employer and employee. This is the effect but not the cause, which is liquidation and its corollary, the lowering of costs.

"The inexorable economic law of supply and demand brought about the present depression. What many failed to consider about supply and demand was that the two are relative. In the building industry the supply, or the means to produce it, is here, but the demand is not. And this is the dominant factor in the labor situation just now.

"What of the trend in labor affairs? The public, two years ago, became weary of one demand after another and strike after strike. Labor leaders and labor unions lost the sympathy of the public. This has gone almost entirely to the employer. In the present economic condition it is supporting him to reduce costs through lowering wages. With the support of the public undoubtedly less restrictive labor agreements can be made. There is no use disguising the well-known fact that all over the country there is a drift to the open shop method of employment, or if agreements are made, they relate mostly to hours and wages, eliminating all the restrictive trouble-making features. In more than one large city the building industry is being operated almost entirely without a signed agreement, men being employed regardless of union affiliation.

"Perhaps a few suggestions from the committee may not be out of place:

"In making agreements (and they will continue to be made) several well-defined principles ought to be recognized:

"First—No sympathetic strikes.

"Second—No restriction of production.

"Third—The elimination of anything that causes friction or trouble and can in no way regulate wages or influence production.

"Fourth—That a sympathetic strike would immediately abrogate the agreement.

"Fifth—Increased number of apprentices, these under control of employers.

"Sixth—Local trade autonomy.

"Seventh—No boycotting of materials.

"Just sixteen years ago this Association adopted as one of its cardinal principles the open shop plan of employment. During these years of the rising tide of restricted unionism, it has held firmly to this principle, refusing several times to either modify or eliminate it. Today its sixteen year old position is vindicated."

Following the report of the Labor Committee came an informative address on "Hard Lead as Applied to

Building Work," by A. Viertel of United Lead Company, New York City, the main paragraphs of which are as follows:

Synopsis of Address on "Hard Lead as Applied to Building Work," Delivered by A. Viertel of United Lead Company, New York, to Convention of National Association of Sheet Metal Contractors, June 15, in Pittsburgh, Pennsylvania.

"As members of the National Association of Sheet Metal Contractors, taking active interest in sheet metals, the subject of sheet lead, its origin, its uses, wonderful developments, etc., will, I hope, be of interest to you all.

The lead roofs, conductors, heads, flashings, etc., installed some hundreds of years ago in Europe, are where the buildings have stood the same test of time, still in evidence, and apparently good for centuries to come. This applies to France, Holland, Germany, England and Scotland.

"In Holland, where the climate is so humid and the salt air is continuously passing over the country, lead has stood the great test of time.

"The well known durability of lead offered a field full of exceptional possibilities to the makers of hard lead.

"One of the early uses of this new form of lead was for the lining of all types of acid and chemical tanks, which were subject to great abuse, such as the knocking of the material in the tanks against the sides. The success of hard lead sheets, as the product is now known for the above purpose, lead to further developments along the lines of architectural uses.

"The former necessity for using heavy lead for roofs sometimes as high as 8 pounds to the square foot, is now obviated by the much stronger and lighter hard lead.

"The process of manufacture and use of hard lead warrants the statement that its coefficient of expansion and contraction is considerably less than other metals, usually considered for quality roofing purposes.

"Hard lead, in addition to being made in sheets of standard sizes of widths from 16 inches to 48 inches by 96 and 120 inches long—(these are the sizes most generally used by the sheet metal contractors)—is also furnished in castings for leader-head, bands, finials, gargoyles, crestings and other special work. It is produced in sheets from 1 pound, or a sixty-fourth of an inch, up to one inch thick, or sixty pounds to the square foot.

"Of the many distinct advantages of hard lead, the following points of merit predominate: 1. Almost nil expansion; 2. Rust and galvanic proof; 3. Acid resisting; 4. Adaptability; 5. Ease of soldering; 6. Unchanging color; and 7. Stain-proof."

Zinc and its uses in building construction constituted the theme of an able and enlightening address by E. H. Wolff of the Illinois Zinc Company, which is as follows:

Address on "Zinc and Its Uses," Delivered by E. H. Wolff of Illinois Zinc Company, June 15th, to the Convention of National Association of Sheet Metal Contractors in Pittsburgh, Pennsylvania.

"The American Zinc Institute, Incorporated, was organized about three years ago at St. Louis by repre-

sentatives of the zinc industry of the United States and its membership is now composed of representatives of practically the entire industry—from ore production to the finished product. Its activities are controlled by a board of directors consisting of 21 members, with headquarters at 27 Cedar Street, New York City, where there is established an executive secretary, whose duty it is to devote his entire time to matters pertaining to the use of zinc in every way, to furnish information to the public and especially to guide the metal worker in the use of zinc.

"Prior to 1918 there was no association or organization of the zinc producers, smelters or rollers, and it was the full co-operative effort of those connected with the industry during the stress of war that was really responsible for the present organization.

Adopts Effective Slogan.

"During the past three years our Institute has endeavored to bring zinc as a metal prominently before the American public by advertising, by advocating new uses, by having the word 'spelter' changed to 'slab zinc,' by adopting the slogan *Make It of Zinc*, and more especially by working out on architectural service sheets, various forms for the application of zinc for roofing and distributing these service sheets throughout the United States to architects, builders and metal workers.

"Prior to the organization of the Institute no determined effort had been made by any individual company to educate the metal workers in the use of this very valuable metal, or to overcome the well-known prejudice of metal workers, who apparently preferred and recommended other metals.

Lack of Instruction in Zinc.

"These objections came mostly from a lack of knowledge on the part of the metal workers, and as the art of working zinc had not been taught, and as no apparent effort had been made by the producers of zinc to instruct in the use of the metal, we can well understand the reason for the attitude of the metal worker. For instance, in the use of solder, raw acid is detrimental to a successful result. The acid should be cut with small pieces of zinc to a point where it will not absorb more metal. With this flux and a soldering iron that is just hot enough to melt the solder, the best of results can be obtained.

When to Work Zinc.

"Another point not generally understood by the metal worker is that in a difficult forming or bending operation, the metal should be bent across the grain or across the sheet, rather than with the grain or with the length of the sheet. Brittleness ascribed to sheet zinc is mostly caused by low temperature in winter weather. A metal worker not knowing that zinc will crack or break if formed when very cold, condemns the metal as inferior to some other brand or even other sheets from the same shipment which were formed in a warm shop. Sheet zinc should not be worked when very cold or chilled.

Zinc of Various Qualities.

"The development of new uses for rolled zinc has caused the producers to provide metal of various qualities, and what is known as commercial zinc sheets are now being supplied as heretofore, when the requirements are for a more ductile metal—especially for

drawing and spinning purposes—and the requirements are known to the roller, such a metal can be supplied. A form of rolled zinc known as strip in coil, or ribbon zinc has been a commercial product in America during the past 10 years. It is used generally by fabricators on automatic machines to produce small parts such as eyelets, lace tips, jar cap, etc., and in narrow widths it is formed into weather strip, automobile moulding, small flashlight battery cells, and various other small articles. This metal is rolled in single sheets in one continuous direction, both sides of the sheet being in direct contact with the surface of the roll, which gives the metal a soft ductile surface finish.

Commercial Sheet Zinc.

"Commercial sheet zinc, however, is produced by an entirely different rolling process. The finished sheets are wide with a length limit of 10 to 12 ft., having a fine homogeneous texture due to cross rolling, and a hard glossy surface.

Zinc Extensively Used for Roofs in Europe.

"At the St. Louis organization meeting of the Institute, one of the representatives connected with the rolling of zinc, called attention to the fact that while in Europe a very large percentage—estimated at 90 per cent, of the entire rolled sheet tonnage produced in Europe—went into roofing. In this country no effort had been made to advance the consumption of zinc for this purpose, and it was suggested that the newly organized Institute take up the question of zinc for roofing in a vigorous manner.

"During the first year, our organization secured valuable information from European countries and it was finally decided to send a representative to Europe for the purpose of inquiring into the exact method of application. The result has been that we are now prepared to furnish complete information connected with the erection of a built up batten roof, or the application of corrugated zinc sheets for roofing and siding.

Zinc Workers' Handbook.

"We secured from the principal Belgian zinc roller permission to use and publish the Smits zinc worker's handbook, which has been translated from the French language and at this time is being revised to meet conditions in America. We expect to soon bring it into publication for distribution by the Zinc Institute.

Comparatively Low Cost for Roofs.

"That rolled zinc is without question the very best roofing material known has been demonstrated in continental Europe and is evidenced by the fact that it is the common and popular roofing material of those countries. We can cite roofs as far back as 1811 and many roofs that were built during the period of 1840 to 1850 are in service at this time. Some of the largest and finest buildings in Europe are roofed with zinc. The comparatively low cost and the fact that it is indestructible makes it valuable for public buildings, cathedrals, churches, theaters, depots, warehouses, factories, hotels, etc. We are informed that in 1913 there was consumed in continental Europe and the United Kingdom, a tonnage of zinc sheets for roofing purposes, equal in money value to considerably more than the expenditure in the United States during the year 1916 for all classes of metallic roofing.

"The European workman, of course, is trained to

use zinc and knows how to handle it; while no special effort has been made in America to train our workmen in the use of zinc; yet it is difficult to realize that such little progress has been made in this country in the use of zinc for roofing.

Zinc Institute Service Sheets.

"The builtup batten roof shown on the Zinc Institute service sheet is an ideal roof for factories and large areas and can be built by any metal worker, without difficulty, if the instructions given on the sheet are followed. The metal is subjected mostly only to a right angle bend, with ample provision for contraction and expansion.

"The theoretical contraction of rolled zinc is 273/1000 of an inch, or about $\frac{1}{4}$ inch to a sheet 10 feet long during an extreme variation in temperature of 140 degrees Fahrenheit. By way of comparison, the contraction of sheet copper is 156/1000 of an inch at 140 degrees Fahrenheit, or slightly more than one-half the contraction of zinc.

Easy to Apply Zinc Roofing.

"A zinc roof can be applied by any one who can put on a tin or galvanized iron roof. It requires no extraordinary amount of skill; nor the use of specially trained men other than those already trained in the roofing business.

"There is a demand for more permanent roofing. We of the American Zinc Institute are doing all we can to spread the slogan *Make it of Zinc*—the best of all non-ferrous metals for roofing purposes—and are desirous of cooperating with all who wish information as to the use and requirements of the users of zinc for all purposes. There is now available for purchase by the trade, rolled zinc gutters, down spouts, tile, shingles, formed ridge cap, valleys, V crimp and corrugated sheets in all the standard sizes and corrugations.

Conducting Campaign of Education.

"May we suggest to the members of the National Association of Sheet Metal Contractors that they should not overlook the progress being made in America today towards zinc roofing. We are conducting a campaign of education as evidenced by my presence here today, and you should become informed in order to be prepared to take advantage of opportunities when they may develop. We invite your aid in this campaign, especially as it applies to roofing. Some of the present forms of roofing in general use are not applied by metal workers. Therefore, the more popular our metal becomes and the more use that is made of it the more work there will be for members of your association.

"As a matter of information, we have knowledge of the existence in Chicago fifty years ago of a company making gutters and downspouts from zinc. It was a stock material and an effort was made to bring it into popular use, but in those days the metal workers had very much less knowledge of the metal than they have today and it is assumed this company went out of business because the metal workers could not handle the material.

Zinc at the World's Fair

"At the World's Fair in 1893, the Vielle Montagne Company, Liege, Belgium, had an exhibit of zinc roofing, and their literature distributed at that time, advo-

cated its use and called attention to the vast possibilities to America in the use of rolled zinc for roofing purposes. We attribute the failure of all former attempts to interest the American people in the use of zinc for roofing, as due entirely to individual effort and lack of knowledge of zinc. The American Zinc Institute, by virtue of its being a national organization and the fact that practically all zinc producers are interested in accomplishing the desired result, will, we believe, bring it to pass in the very near future."

The manufacturing phases of the industry with special reference to warm air heaters and accessories were dealt with in a friendly and illuminating address by Allen W. Williams, Secretary National Warm Air Heating and Ventilating Association. The substance of his speech is as follows:

Address by Allen W. Williams, Secretary National Warm Air Heating and Ventilating Association, to the Convention of National Association of Sheet Metal Contractors, June 15, 1921, in Pittsburgh, Pennsylvania.

"I imagine you are interested generally in what the manufacturing part of our industry is doing and how the makers of warm air heaters and accessories regard conditions and specifically late developments from our research work at the University of Illinois as well as the future of that activity which is so important to us all.



Allen W. Williams, Secretary National Warm Air Heating and Ventilating Association.

"Before I overlook it, I desire to call your attention to the fact that warm air heating has taken on a new dignity. Please do not misunderstand me. The National Warm Air Heating and Ventilating Association is not claiming the credit for this beyond the manner in which its membership has undertaken and liberally supported the research activity and intends its unit of influence to continue to

deliver its full force in that direction.

"I believe this new condition is also in a large measure due to the fact that we as installers and manufacturers have greater respect ourselves for our method of heating than in days that have passed. I wish more of you had attended our Cleveland convention last month at which this change was much in evidence as the meeting progressed. Those who were present will also tell you that the sessions were serious and by no means resembled a meeting of a mutual admiration society. Constructive criticism was frequent and well received.

Tells Status of Research Work.

"Now as to our research work, under the direction of Professor Willard, assisted by Professor Kratz and Mr. Day at the University of Illinois. The past twelve months have indeed been important ones in this activity for our method of heating, since it was during that period it reached the point where after more than two

years of hard work the equipment became complete and the necessary engineering data available for use in practice.

"In fact it is only within the last thirty days that it has been safe to announce that the actual testing of furnaces can be commenced. This does not mean there are no further general problems of design and construction for our Research Department to work out, but it does mean that we have reached a stage where the performances of various types, constructions and individual heaters may be correctly determined by entirely disinterested authorities. At our May convention, our research staff and Association committees announced that such testing could commence at an early date. Professor Willard, in his usual practical way, recommended that these tests be run in an ordinary residence purchased or rented for that special purpose.

"Our Association endorsed this recommendation and in the near future we expect to secure such a house and increase our research staff by two additional experts who will give their entire time to the testing part of the research work.

No Particular Heater Has Yet Been Tested.

"While on this subject, I would like to say that from time to time statements have been occasionally made by ambitious salesmen to the effect that their particular heater has already been tested at the University, incidentally adding that as expected, it had proved the best furnace made. I wish to correct any wrong impression you have gained through such rumors. No tests have been run on individual furnaces for individual manufacturers. All of the research work up to this time has been of a general character. Therefore, do not be misled by any such statements.

"As I have already intimated, it is quite possible, in fact we expect that further research work of a general character as to types and construction may be made before the actual testing gets well under way.

Synopsis of Bulletin No. 120.

"University of Illinois Bulletin No. 120 was received from the press at our Cleveland convention May 24th, and it is by far the most interesting and valuable one that has been published upon the investigation of warm air furnace and heating systems since our research work commenced. In the first pages it reviews the accomplishments in short form as follows:

"(1) Complete testing codes for both piped and pipeless furnaces have been drawn up, tried out in detail, and are now before the American Society of Heating and Ventilating Engineers.

"(2) The measurement of air temperatures across an air stream such as that flowing in furnace leaders or stacks has been made, and the differences between the air and the pipe temperatures accurately determined.

"(3) The heat loss from a pipeless furnace has been determined.

"(4) The heat insulating efficiency of most of the commercial furnace pipe and casing coverings has been measured.

"(5) The investigation of the relative value of solid and slotted fire-pots has been begun and results with furnaces operating on hard and soft coal obtained.

"(6) The application of small fan units to ordi-

nary furnace installations has been made one of the subjects of the investigation and the results of the preliminary investigation are included in this report.

"(7) A study of the proper proportions for leaders and stacks has been made, and the air carrying capacities of leaders and stacks with varying relations of cross sectional area have been ascertained.

"(8) The effect of one type of register grille on the air delivering capacity of a pipeless furnace has been determined. The study of register grilles in general is now in progress.

"(9) The effect of height of register above the furnace, and the air temperature at the register, on furnace or leader capacity has also been determined for the piped furnace.

"(10) Typical performance curves for both piped and pipeless furnaces, showing the relation between combustion rate, draft, heating capacity, air temperature at registers, and efficiency have been obtained.

"(11) Comparative tests of a pipeless furnace operating first on hard coal and then on soft coal have been made, but complete performance curves on soft coal are not yet available.

"It required only a moment to enumerate the above but for one not familiar with the work it is difficult to realize the amount of patience and time required to make these statements facts. Those of you who have not read this particular bulletin should by all means secure a copy. It will show you better than I can tell you, just what the research work means and is doing.

Question of Covering Pipes.

"The publication of Bulletin No. 117 upon the Emissivity of Heat from various surfaces seems to have occasionally caused a misunderstanding to the effect that leader pipes should be left uncovered. Our research staff still favors the covering of such pipes but only urges that they be sufficiently covered to accomplish a real saving in heat and not in such a manner as to cause an actual loss of warm air which is passing through them.

Experiments With Fans.

"One of the later subjects referred to in Bulletin No. 120 is the preliminary experiments with fans in connection with house heating and the preliminary tests indicate a surprising economy and increase in efficiency from this method of increasing the velocity of air of heating surfaces. This bulletin states by using a fan for positive circulation, it seems possible to increase the capacity of a pipeless furnace from two to three times the capacity on natural circulation and the advantage of being able to promptly fill in all the leader pipes of a pipe job will be appreciated.

"This reminds us that the use of really practical accessories is increasing and that humidifiers, thermostats and fans bid fair to become quite an important part of our business.

"It occurs to me to mention here that you will be interested in Farmer's Bulletin No. 1194 entitled 'Operating a Home Heating Plant,' which can be secured from the Publication Division, Department of Agriculture, Washington, D. C.

"The matter of installation codes, state and national, have always required the attention of both of our organizations and during the past year they have been a

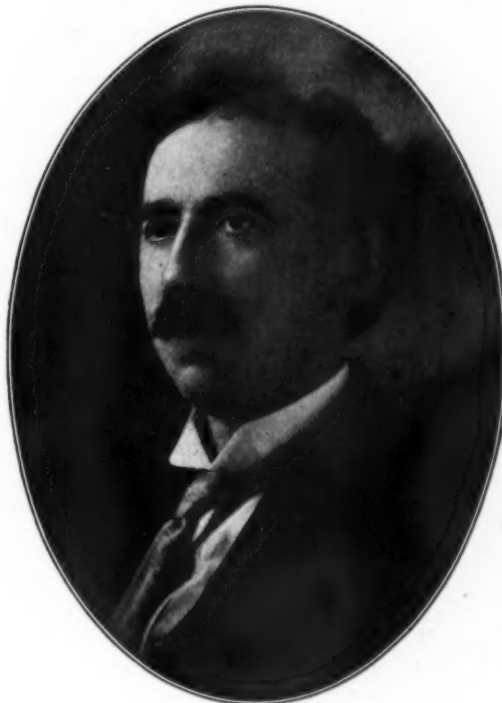
problem which has caused us all more or less anxiety. Our organization feels that our interests are mutual in this important subject. What we want is better installation, supervised in a broad-minded practical way.

"In closing, it is a pleasure to express to you once more the very high regard in which we hold the friendship and moral support that your organization has always extended to our Association for we are both thinking and acting nationally for the development of the Warm Air Heating Industry."

The Wednesday morning session closed with moving pictures and lectures on "Making of Sheet Iron and from the Ore to the Finished Product," by T. W. Jenkins of American Rolling Mill Company.

Wednesday afternoon's session was a special meeting devoted to the work of the Trade Development Committee of the National Association.

It began with remarks by the Chairman Paul F. Brandstedt, Washington, D. C., and consisted of spe-



National Trustee R. J. Braley.

cially prepared papers on definite phases of sheet metal work. One of the interesting treatises contributed to this Trade Development session was by Paul L. Biersach, Milwaukee, Wisconsin, who dealt with the topic of "Fire Prevention Work." The main paragraphs of his address are as follows:

Synopsis of Address on "Fire Prevention Work," Delivered by Paul L. Biersach of Milwaukee, June 15th, to the Convention of National Sheet Metal Contractors' Association in Pittsburgh, Pennsylvania.

"Fire prevention costs less than fire extinction and reconstruction and, therefore, it will not be amiss to call your attention to the fact that sheet metal has been used as a fire preventive all the world over ever since its inception.

"The great fire waste of our country creates more destruction than its floods or its tornadoes, yearly, the loss of life is stupendous and a large number of injuries are the toll of fire disasters. Statistics for the year 1920 reveal to us a fire loss of \$300,000,000 and 15,000 lives.

"There is a way to grapple with and solve the fire problem, possibly not absolutely but at least relatively. It is not necessary that you tear down your present buildings and rebuild them of fire resisting material; but you can protect them as they stand by the simple and strategic procedure of applying sheet metal and its subsidiary products.

"The prohibition of the shingle roof, which is now generally recognized as a conflagration breeder is today almost universal, within fire city limits and from more enlightened communities, it is excluded altogether.



Paul L. Biersach, Trustee National Association of Sheet Metal Contractors.

Burning shingles can be carried great distances by the wind or draught of a conflagration and when they may alight in their turn upon other dry shingles, they make fearful havoc.

"It is obvious and beyond contradiction that all sheet for roofing purposes, whether tin, galvanized iron, or copper, whether laid in the flat, standing seam, or in the various other shapes such as tin or galvanized iron shingles, is by far a better fire preventive and retardant than any other so-called wood shingles, paper or composition roofing.

"We must come eventually to the equipment of all commercial, factory and office buildings with metal window frames, glazed with wire glass. This will mean the abolition of the conflagration hazard in our cities. Fires will then be unit fires, extinguished very easily by a competent fire department within the building in which they originate; for the protection of window openings not only prevents fire from entering but also from issuing out of the burning building. We may expect an occasional exceedingly hot fire to break down the defences of an adjoining building but it is obvious that a conflagration could not get under way among buildings of fire resisting construction with properly protected window openings.

"Great progress has been made in the past twenty years in the construction of standard hollow metal windows as manufactured by a great number of the

members of this Association, in so far, that an architect and owner can get almost any type of window that conditions warrant from an architectural and practical point of view, built entirely of sheet metal with wire glass. These types of windows are acceptable to and by the Insurance Underwriters throughout the United States and Canada. The hollow metal windows when properly constructed and glazed with wire glass are by far superior to wood windows with fire shutters or rolled steel sash.

"There are standard fire doors of many kinds designed to conform to all conditions. Fire doors sliding vertically or horizontally, swinging doors, etc., are available to meet varying conditions.

"Great strides have been made by manufacturers of sheet metal furniture, metal shelving and lockers and it is needless to assert that every one of us should advocate the use of sheet metal for any work it may be suitable for, we will all benefit thereby and eventually increase our business.

"Let us have faith in our right to create might and with such faith let us do our duty as we understand it, preach and practice it."

The session ended with a report of the year's work of the Trade Development Committee and Financial Accounting by Chairman Paul F. Brandstedt substantially as follows:

Report Trade Development Committee Delivered by its Chairman Paul F. Brandstedt to the Convention of National Association Sheet Metal Contractors, June 15, 1921, in Pittsburgh, Pennsylvania.

"I herewith make the second report of your present Trade Development Committee. The year's work began slowly, due to the press of business still on early



Paul F. Brandstedt.

in 1920, and to a great extent, to the uncertain source of financial support this work must have to make it a success. On January 22d your chairman, after receipt of the consent of the majority of the committee, called a meeting for February 3d at Indianapolis, Indiana. The business of that meeting was first, to determine a financing plan to provide sufficient funds to insure the completion of the work and have same ready for the printer. The second part

of the business was to provide a definite working plan for the subcommittees, so as to insure speeding up at once and to give proper authority to the various sections of your Committee enabling them to function. This was accomplished in a quick and decisive way, the members present going into the details with energy and a set purpose to get the work under way without delay.

The Financial Plan.

"The financial plan needs no further explaining, the same has been made public and is now in full operation. The hearty response your committee received to

the plan as submitted has been, indeed, a source of satisfaction. We also wish to remark that the fund that will be required is not yet complete and we ask every delegate and member of our national body to support this work so as not to retard its progress for lack of funds.

Professional Recognition.

"The matter of giving each sub-committee the authority to make any arrangements looking to furthering the work was quickly done. All sub-committees were instructed to engage draftsmen or engineers to do such work as will be necessary. This has been done in Washington, D. C., one of our leading architects was conferred with and he consented to take up the work as he recognized its value and thoroughly appreciated its importance and scope.

"To have professional men of recognized standing collaborate on this task combined with our own practical and experienced men will give it the highest recognition. Because of changes in the General Committee, there having been additions, we will enumerate the sub-divisions and their membership, and such members who have not been assigned but are members of the committee.

Assignment of Subjects.

Architectural Sheet Metal Work and Metal Roofing: P. F. Brandstedt, Washington, D. C.; Max Walten, Washington, D. C.; W. A. Fingles, Baltimore, Maryland and W. C. Markle, Pittsburgh, Pennsylvania.

Ventilation: D. M. Haines, Chicago, Illinois.

Skylight and Kindred Work: Thomas P. Shean, Chicago, Illinois.

Warm Air Heating: George Harms, Peoria, Illinois, and E. B. Langenberg, St. Louis, Missouri.

Blower and Exhaust Work: Hugo F. Munro, Philadelphia, Pennsylvania.

Fire Prevention and Metal Windows: Paul L. Biersach, Milwaukee, Wisconsin.

Slate and Tile Roofing and Metal Work: Harry C. Knisely, Chicago, Illinois.

Metal Doors, Trim, Etc.: George Thesmacher, Cleveland, Ohio.

Protective Coatings, Painting: (Will fill).

Publication: E. A. Scott, New York City, A. G. Pedersen, Chicago, Illinois, and H. N. Taylor, Philadelphia, Pennsylvania.

Finance and Accounts: P. F. Brandstedt, Washington, D. C., and Julius Geroch, Jr., St. Louis, Missouri.

Not Assigned to Special Work: A. W. Howe, Cleveland, Ohio, and A. B. Preyer, Middletown, Ohio.

"The make up of book will be as follows: size of pages 9 x 12 inches. It will contain approximately 550 pages divided into various sections, each section to contain a branch of our industry complete. The sections will contain as near as we possibly can establish at this time, the following number of pages:

	Pages
Architectural Sheet Metal Work.....	100
Metal Roofing	50
Ventilation	50
Warm Air Heating	100
Skylights, etc.	50
Blower and Exhaust Work	35
Fire Prevention	35
Metal Windows	10
Slate and Tile Metal Work	10
Metal Doors and Trim	10
Gutters, Leaders, etc.	25
Miscellaneous	35
Protective Coating, Painting.....	5
Tables, Data, etc.	25

The foregoing is subject to revision and may have to be increased.

"I have given you a record of your committees' work in a short direct and plain manner, much has been accomplished that can hardly be seen. It is part of the

ground work and must be done carefully and thoroughly, it is well to make haste slowly for there is too much at stake to permit missteps. We believe that with diligent application, with steady persistent pushing, with co-operation from all sources we can finish this work in a year.

Asks for Suggestions from Members.

"At this particular point we want to impress some pertinent facts on your mind. First, this is your work. If you have any view points to present, do so in writing; any meritorious matters will receive full consideration. Second, if you can give us anything of a practical nature, do so. Anything of value is solicited, for our work must take on the color of experienced and practical men combined with the technical knowledge of the designer. These factors together create an indispensable medium for the building industry.

"From the papers presented by the various gentlemen today you have learned how all these minds are working and how thought and study are bringing to the fore what can and should be done or avoided. From the viewpoint of the Chairman all this means much to our association. You can not value it now. Only in years to come will we reap the harvest and learn to understand.

Fundamentals of the Work.

"The fundamentals of our undertaking are: A standardizing influence on the output of our shops brought about by the co-ordination of minds beginning with the architect and ending with the man who paints the finished product; a unifying of the best methods of working and assembling and the application of the best materials obtainable; the giving of full and complete information to the men who design our buildings thereby eliminating the unscrupulous person who is ever ready to substitute and cheapen our work and who is the greatest menace to our business, present and future.

"In closing this report I will give a general outline of the principle which will govern the various sections.

Outlines Method of Treatment.

"In the Architectural Cornice Section, there will be drawings of a variety of cases as they enter into building ornamentation. Each specific case will show an elevation and a section of the work. It will show method of making, erecting on building and a clear specification to work after.

Ventilating Ducts.

"For Ventilating duct work practical and correct methods of construction will be shown with tables of gauges of metal in ratio to size of duct.

Skylight Construction.

"Another and highly important section of our work requiring a thorough overhauling and standardizing is 'Skylight Construction.' It is our intention to make a thorough test of skylight bars so as to determine the proper size of bar to be used on any span.

Warm Air Heaters.

"In the Furnace section a great deal will be done to bring into harmony the various views and methods. It will clarify the existing clashing of minds and must bring about a substantial and common basis for all furnace installation activities.

Fire Prevention.

"Another vastly important section of our business is 'Fire Protection.' The importance of this work is summed up in this simple statement: The fire losses the people of the U. S. pay annually is over One Million Dollars per day.

Metal Roofing.

"A part of our business that has gone to seed, is that of roofing. We have no quarrel with composition roofing of the various types, we do not intend to flay other roofing materials because it is being used, and we do admit there are places and there are conditions which some metals can not meet. But we do say, and most emphatically, there has been and still is a laxity on our part to not even attempt to agitate Metal Roofing.

Exhaust and Blowpipe Work.

"Another most interesting section of our work is that of Exhaust and Blowpipe work. This work in particular illustrates another reason why we have not kept all our general work to the forefront. In working out blower and exhaust systems some engineering knowledge is essential to lay out a real effective system. The reason there are so few firms who do this class of work successfully is that only a few men are willing to give study to these problems.

"I have picked a few of our problems and pointed out some of the reasons why we are slowing up. To mention them all would be a long story. Suffice it to say that when men are engaged in a high grade business that requires skill of a high order it is for them to push their business to its greatest possibility. We are banded together for such protection as will minimize the bad practices we have been subjected to and to educate ourselves to and for better things. This then being our object and having learned that we can do these things, let us also get such benefits as shall and must accrue to us by a combined and systematic trade boosting campaign that will not only increase our output but will raise the standards of our business and will by sheer force of merit compel a high regard for it by all thinking men.

Help Your Committee.

"So in conclusion I again say to you with all the force possible 'Help Your Committee,' help in every way you can, if we ask you to do something, do it and at once, for nothing is so discouraging as to not receive prompt answer. If you have done an interesting job send along the details with picture, but do it.

"Our business is 'To Make and to Build'; our motto is 'To Create,' and let us hold it high, not only in the material sense but also in that higher and broad ethical sense, 'Service for Humanity.'"

In the evening the delegates and their women folk found relaxation and diversion in a boat ride on the river with dance and refreshments.

Thursday, June 16, 1921.

A report of the Trade Relations and Policy Committee by Edwin L. Seabrook was the first thing on the program of Thursday morning's session which was called to order at 9:30 o'clock. A synopsis of this report is given herewith.

Report of Trade Relations and Policy Committee Delivered by Edwin L. Seabrook to Convention of the National Association of Sheet Metal Contractors, June 16, 1921, in Pittsburgh, Pennsylvania.

"The methods by which sheet metal supplies finally reach the consumer can not fail to interest the sheet metal contractor. That he is interesting himself in this is evidenced in several ways. Instead of being passive about the matter, he is becoming aggressive. With this change of attitude the work of this committee is changing in character, and this is true of like committees of similar organizations.

"Its intervention, by request, to settle differences between jobbers, etc., and members arising out of trade protection practices, are becoming less frequent. This does not lessen the scope of the committee—it really enlarges it. It is better enabled to attempt at least to suggest methods of procedure which it believes will put the trade in a position to protect itself against the direct-to-consumer sale.

Harmful Trade Practices.

"In passing it might be well to note that these practices are not common only to the sheet metal industry. Nearly all other trades are contending with the same conditions in one form or another. Perhaps it comes closer to the sheet metal dealer because the firms that supply him with materials are very limited in number in comparison with other lines. Ofttimes in the past it may have been the sheet metal contractor's own jobbing house that sold his customer.

Business Going On Competitive Basis.

In the next place business is undoubtedly drifting to a more competitive basis. There is not now, and there probably will not be, for several years, any such flood tide of profits and wages and expansion of credits as has been witnessed in the last five years. In fact, every indication, including history, after similar upheavals, through which we have just passed, points to gradual price declines for several years to come. This means that merchandise will be sold on a competitive basis rather than on marking up the price because of scarcity and demand. If this condition prevails, will there be a disposition on the part of some manufacturers and distributors to seek business where it originates, with the consumer? You must draw your own conclusions.

"To offset this possible condition the sheet metal contractors are becoming better organized and more aggressive. The State conventions have afforded an opportunity for a number to attend such gatherings where attendance at the National conventions would not be possible. Such gatherings have resulted in outspoken protests against some practices by the jobber and manufacturer.

The Indiana State Convention, last February, spoke in no uncertain terms about some of the practices in that State.

"The convention of the New England Federation, last April, discussed the matter in open session. A committee was appointed to confer with the Boston jobbers and lay before them the effects some practices were having on their own customers.

"The Iowa State Convention, in May, adopted strong resolutions against certain practices within that State and appointed a Welfare Committee to handle the situation.

Fly-by-night Dealers.

"A little aside from the subject, but akin to it, was the action of the sheet metal contractors of Detroit, Michigan, in connection with supplying tools and materials to what is sometimes termed "fly-by-night" dealers. In times of labor trouble or business depression a number of mechanics engage in business for themselves; many do this as a temporary makeshift. The Detroit firms, without any attempt to exclude anyone from securing supplies who was legitimately in the business, appointed a committee of four to meet a like committee from the supply houses and work out some plan to determine who should be entitled to purchase supplies, etc.

"Another very favorable sign is the number of Salesmen's Auxiliaries which have been organized in connection with the State Associations. There can be no question but that the mingling of buyer and representatives can have but a good effect and eliminate many of the undesirable practices in the past.

Farmers Need Sheet Metal Products.

"A big field for sheet metal products is the farmer. The local dealer can command this if he will go after it. An Indiana member in a small city stated in the Peoria convention, last year, that he supplied to the farmers in his vicinity 1,700 metal troughs. These were used for watering live stock. This is only a sample of what can be done everywhere to produce new business and hold old trade.

"This self help on the part of the dealer can be illustrated by two instances: A Pennsylvania member offered to spend three hundred dollars a year advertising metal roofing if some jobber or manufacturer would furnish the ads and copy.

"The members of a local association in Maryland asked our office for suggestions to increase the demand for sheet metal. The answer was, to give publicity to its merits.

"In both these cases manufacturers furnished copy for a series of newspaper ads. Would not co-operation of this kind tend to eliminate even an excuse for direct sales?

"The dealer cannot be passive in these matters and expect mere force of numbers to alter a condition that requires individual effort on his part.

"Your committee does not make any specific recommendations. It wishes, however, to suggest to the membership direct cooperation on the part of the individual member and the jobber or manufacturer, on the same lines of the Pennsylvania member, in giving publicity to the merits of sheet metal products."

Following the report of the Trade Relations and Policy Committee came a demonstration on overhead expense by William D. McIlroy. A general discussion then ensued and the session closed with an analysis of problems presented through the Question Box.

Thursday afternoon was spent in auto tour followed by dinner and dancing.

Friday, June 17, 1921.

Reports of Trustees, Resolutions Committee and of State Associations occupied the greater part of the time of the final session of the convention.

All the present officers were re-elected as follows:

President: ARTHUR P. LAMNECK, Fifth Avenue, and H. V. R. R., Columbus, Ohio;

First Vice-President: FRANK B. HIGGINS, St. Louis, Missouri;

Second Vice-President: JOHN A. PIERPONT, Washington, D. C.;

Third Vice-President: GEORGE P. WERNER, Galveston, Texas;

Fourth Vice-President: D. M. HAINES, Chicago, Illinois;

Secretary: EDWIN L. SEABROOK, 261 South Fourth Street, Philadelphia, Pennsylvania;

Treasurer: JULIUS GEROCK, 1252 South Vandeventer Avenue, St. Louis, Missouri.

Three new directors were chosen, namely, F. B. Hiller, W. A. Fingles, and R. E. Pauley.

Conventionalities.

Liberal quantities of good cheer were dispensed in the form of smiles and friendly greetings by Harvey J. Manny of Manny Heating Supply Company, Chicago.

One of the many appropriate and pleasing things of the convention was the presentation by "Harry" Hussie of a beautiful diamond-set Masonic ring to President Lamneck on behalf of the Association.

The Pittsburgh Convention Committee has every reason to feel proud over the manner in which the comfort and pleasure of the visiting delegates were looked after. All arrangements were carried out in the most excellent fashion and everybody was loud in praises of the work of the Committee which was headed by Louis Luckhardt, the other members being, W. C. Markee, W. F. Angermyer, W. J. Fortenbacher, E. W. Scarborough, S. N. Wilcox, O. E. Kendig, W. J. Keist, W. H. Sholes, J. S. Daugherty and John Graff.

Julius Gerock, of Gerock Brothers Manufacturing Company, accompanied by his bosom friend, Herbert Symonds, was among those present, but "Jule" felt rather lonesome at times, as "Herb" was accompanied by his better two-thirds and had to go shopping and sight-seeing with her.

Bennett Chapple, Publicity Director, and W. T. Jenkins, of the Sales Development of the American Rolling Mill Company, made many new friends among the sheet metal contractors for Armco-Ingot Iron. Mr. Jenkins' moving picture illustrated story of the making of this famous product was listened to with careful and interested attention.

Karl Roth, of the Braden Manufacturing Company, Terre Haute, was a prominent member of the Indiana delegation.

A. W. ("Tang") Howe and J. G. Henninger, rotated among their many friends and managed to put in a good word for J. M. and L. A. Osborn Company's line of supplies for sheet metal men.

One of the most interesting features of the entertainment was the tour of inspection of the great plant of Follansbee Brothers Company, at Follansbee, West Virginia. The trip was made Monday and took the entire day, from 10 a. m.

Upon arrival at the mill, the guests, about 150 in number, sat down to a fine luncheon, served in the assembly room of the Sheet Metal Specialty Company, which is controlled by the same interests, and about 1 p. m. the inspection of operations began.

Led by John Follansbee and J. C. Kilroy, Advertising Manager, the men and their ladies saw how ash cans, stove pipes and ovens were made, these being the products of the Specialty Company, and then the process of steel sheet and tin plate making was observed. The visitors were divided into groups under the guidance of the following: W. W. Follansbee, Jr., Gilbert Follansbee, J. C. Kilroy, D. H. Gaston, C. A. Wilson, J. H. Crago and Lewis Burns, all from the executive and sales staffs and by several others active in the actual production.

At about 7:30 p. m. the party returned by special train to Pittsburgh, all voting the trip very enjoyable and instructive.

In a near issue of AMERICAN ARTISAN AND HARDWARE RECORD an illustrated article will be published telling some of the most important features in the manufacture of sheet steel and tin plate.

E. S. ("Dick") Moncrief, E. A. Roberts and C. L. Merritt, were busy showing the interesting points of Moncrief Warm Air Furnaces.

George Harms of the Meyer Furnace Company and F. Meyer & Brother Company, Peoria, Illinois, managed to forget that he is a manufacturer and during the Convention appeared to be only a sheet metal contractor.

"Bob" Ketting, of the Tuttle & Bailey Manufacturing Company, New York, found himself quite busy greeting his many friends in the trade.

P. A. ("Pete") Johnson, the champion of the Champion Wall Pipes and Fittings, was the victim of an attack of gall stones shortly after his arrival, but recovered sufficiently on Wednesday to participate in the work and social life of the Convention during the last couple of days.

Charles S. Trott, of the Parker Supply Company, New York, was one of the busiest men in the Exhibition Hall. He is known to have used up several pencils writing orders for punches, hand screws and their new file handle, which is a very ingenious and useful article.

Arthur P. and W. E. Lamneck were both present. While Arthur devoted his time to the guidance of the Convention as its very efficient Chairman, "Bill" found occasion to land a few carloads of Simplified Furnace Fittings and one-piece stove pipe elbows.

H. E. Marsh came over from Dover, Ohio, and interested several wholesale distributors in the Marsh Wood Cold Air Faces.

W. G. Wise was among those present and had a fine display of Wise Pipe and Pipeless Furnaces.

L. Broemel, of the Peck, Stow & Wilcox Company, Southington, Connecticut, read a highly instructive paper on the need for proper tools being installed in public schools that are to teach the young men the important features of the various trades.

R. W. Menk and A. H. Johnson extolled the merits of Excelsior Warm Air Furnaces and Fittings, etc.

Of course, no sheet metal convention would be really successful without the presence of E. B. Langenberg, who is on more committees than anybody else and who seems to thrive on work, even if he does not grow any bigger around the waist. He was here, there and every-

where when important matters were discussed and always in the "Front Rank," being a captain of the Missouri National Guard.

E. M. Hollenmeyer and Curt Seelbach had many visitors to their booth where they exhibited the new "Addair" fan attachment to warm air furnaces, which has recently been perfected by Mr. Seelbach and is being placed on the market by the Walworth Run Foundry Company, Cleveland, Ohio.

C. C. Stewart and T. F. ("Big Tim") Murphy had a fine display of zinc roofing and other products of the American Zinc Products Company.

J. J. Welshafer and Arthur Viertel extolled the merits of Hoyt Hardlead for building purposes. The product is marketed by the United Lead Company, New York.

E. H. Wolff, President, and E. S. Gellatly, Manager, of the New York office of the Illinois Zinc Company, were busy showing the fine effect produced by their new zinc shingle. Mr. Wolff is also President of the American Zinc Institute and as such delivered a very interesting and instructive address on "Zinc and Its Uses in Building Construction."

Missouri Association Sends Out Its First Letter.

Containing a membership application blank, the first letter sent out by Secretary Otto E. Scheske of the Missouri Sheet Metal Contractors' Association, is a model of good solicitation. Its text is as follows:

"The baby was born at 10 a. m., May 26th, 1921, at the Clardige Hotel, St. Louis, Missouri. It was immediately announced that the baby would live and would grow fast. It was named The Missouri Sheet Metal Contractors' Association (by 27 Charter Godfathers).

"The baby from now on will be referred to as OUR Association. Its purpose in life will be to promote the Sheet Metal business; to encourage builders to use more sheet metal on their buildings; to help every one to solve his problems, to foster friendship; and eventually to become the best State Association in the good old U. S. A.

"The first thing the Association must know is the name of every Sheet Metal Contractor in the State. You can help in this work and we are quite sure you will. Send these names in today. Please.

"The State Association plans to make a study of the problems that daily confront you and hopes to provide a remedy for many ills. Every one will be asked to join in these discussions. It is only by association works of this character that we can build up the Sheet Metal business.

"Our First Annual Convention was a success. The organization work was completed. The Officers are ready and willing to work and all that is asked is the support of every Sheet Metal Contractor in the State.

"You can 'do your bit' by signing the enclosed blank and mailing it with your check.

"Watch the baby grow.

MISSOURI SHEET METAL CONTRACTORS' ASSOCIATION,
Otto E. Scheske,
Secretary."

Detroit Local Advocates Sheet Metal Drafting in Schools.

A report on the progress of the committee appointed to confer with the School Board in regard to introducing sheet metal drafting in the schools was made by A. M. Basman to the meeting of the Sheet Metal Contractors' Association of Detroit, held Monday evening, June 13th.

Mr. Basman stated that the Board was willing to do almost anything along this line but insists upon having full cooperation of the Association.

The subject received considerable discussion and Mr. Basman was instructed to proceed with the good work he already has started.

The question of securing a full time secretary also came up, but it was decided to hold the matter over until the next meeting.

Upon suggestion of R. C. Mahon, a date was set for the Detroit outing, Monday, June 27th, being the day agreed upon.

Charles Mumford, President of the Detroit Local, appointed R. C. Mahon, Charles Marble, and J. W. Stewart, as a committee to make all arrangements and have entire charge of the affair.

A feature of this occasion will be a ball game between the East Siders and the West Siders, with Frank E. Ederle, Secretary of the Michigan Sheet Metal Contractors' Association, as umpire.

R. C. Mahon will be captain of the players from the East Side, while Emil Banks will look after the West Side.

From these teams, players will be chosen to represent Detroit at the State outing of the Michigan Sheet Metal Contractors' Association in Grand Rapids, July 29 and 30.

Following the ball game a chicken banquet will be served at Otto Huck's Inn. A meeting, with some good speakers, will follow the banquet.

Announces Change of Names.

In order more easily to identify the "Everhot" soldering irons with the title of the company which makes them, The Products Company, Maywood, Illinois, has changed its name to Everhot Manufacturing Company.

The personnel of the company remains the same and its business policy continues unaltered, thus assuring the maintenance of good service and trustworthy products.

Notes and Queries.

Aluminum Sheets.

From Fauf Sheet Metal Works, Ludington, Michigan.

Please furnish us with names of manufacturers of aluminum sheets.

Ans.—S. Birkenstein and Sons, 377 West Ohio Street, Chicago, Illinois; Cleveland Metal Products Company, 7609 Platt Avenue, Cleveland, Ohio; United Smelting and Aluminum Company, Incorporated, 53 West Jackson Boulevard, Chicago, Illinois; United States Reduction Company, East Chicago, Indiana; Metal Products Company, 100 South Jefferson Street, Chicago, Illinois.

"Great American" Lawn Mower.

From A. F. Schemmer, Rock Valley, Iowa.

Kindly give me the address of the manufacturer of the Great American lawn mower.

Ans.—Supplee-Biddle Hardware Company, 510 Commerce Street, Philadelphia, Pennsylvania.

Wire Baskets.

From Milton L. Kistler, Box 48, Morenci, Michigan.

Will you kindly inform me where I can secure wire baskets holding about three bushels and round in form.

Ans.—F. P. Smith Wire and Iron Works, 2340-48 Clybourn Avenue, Chicago, Illinois; W. S. Tyler, Company, Cleveland, Ohio; F. J. Meyers Manufacturing Company, Hamilton, Ohio.

Monel Metal Sheets.

From Milton L. Kistler, Box 48, Morenci, Michigan.

I would like to know who manufactures the monel metal sheets.

Ans.—Supplee-Biddle Hardware Company, 510 Commerce Street, Philadelphia, Pennsylvania; Williams and Company, Incorporated, 901 Pennsylvania Avenue, Pittsburgh, Pennsylvania.

Steel Furnace Pulleys.

From Safety Seal Foundry and Manufacturing Company, 242 West Florida Street, Denver, Colorado.

We would like to know who manufactures steel furnace pulleys.

Ans.—Carr Supply Company, 414 North Dearborn Street, Chicago, Illinois; Central Heating Supply Company, 1125 West 37th Street, Chicago, Illinois; Excelsior Steel Furnace Company, 118 South Clinton Street, Chicago, Illinois; Henry Furnace and Foundry Company, 825 Long Avenue, Cleveland, Ohio; W. E. Lamneck Company, Columbus, Ohio; Manny Heating Supply Company, 131 West Lake Street, Chicago, Illinois; F. Meyer and Brother Company, Peoria, Illinois; Standard Furnace and Supply Company, Omaha, Nebraska; W. C. Hopson Company, 516 Ellsworth Avenue, Grand Rapids, Michigan.

Galvanized Adjustable Elbows.

From Acme Sheet Metal and Manufacturing Company, 27-29 North Howard Street, Akron, Ohio.

Please advise who makes galvanized adjustable elbows in sizes up to three inches or larger or two, three, four, five and six inches.

Ans.—W. C. Hopson Company, 516 Ellsworth Avenue, Grand Rapids, Michigan; American Rolling Mill Company, Middletown, Ohio; Ferdinand Dieckmann Company, P. O. Station B, Cincinnati, Ohio; David Lupton's Sons Company, Philadelphia, Pennsylvania; Milwaukee Corrugating Company, Milwaukee, Wisconsin.

Nickel Sheets and Tubing.

From R. A. Strayer, Fayette, Iowa.

Can you inform me where I can secure 18x24x120 inch polished nickel sheets and ¼ inch and ⅜ inch nickel tubing.

Ans.—Steel Sales Corporation, 129 South Jefferson Street, Chicago, Illinois; Midwest Brass and Copper Company, Incorporated, 480 Broome Street, New York City.

Iron Bars.

From Dille and Morgan, Hardware, Chesterton, Indiana.

Would you kindly advise us where we can purchase iron bars to put over our store windows in the rear.

Ans.—Pilsen Foundry and Iron Works, 1526-32 West 22nd Street, Chicago, Illinois.

Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

STEEL OPERATIONS SHOW NO IMPROVEMENT.

A continuation of the decline in demand and curtailment in production is still the feature of the iron and steel industry. The country's steel output decreased some 5 per cent to 25 per cent of capacity (approximately 12,800,000 tons yearly), and the spread between the rate of operations of the mills of the corporation and those of the independents was slightly narrowed during the week.

Today's rate of production for the leading interest is less than 30 per cent of capacity and that of the independents approximately 20 per cent.

The corporation's mills are still doing about 10 per cent better than those of the independents. The unfilled tonnage report of the leading interest showed orders on the books as of May 31 which aggregated 5,482,487 tons, a decline of 362,737 tons during the month.

New business coming into the corporation is between 15 and 20 per cent of normal, while that being booked by the independents will hardly exceed 15 per cent.

It is predicted in some quarters that the steel industry will be down to a 20 per cent rate or lower before the end of the current month.

The most important development in the market during the week is the adoption of the United States Steel Corporation of the policy to meet price competition and the taking of business by the wire subsidiary at the lower prices of the independents is the first example.

It is stated positively in quarters usually well informed that such a policy is now in force, but official confirmation or denial has not yet been vouchsafed.

According to the American Iron and Steel Institute, the May output of steel ingots by companies that produce about 85 per cent of the country's output aggregated 1,265,850 tons, a slight increase over April.

The output of the entire industry must have been 1,503,206 tons. The increase was due to the increase in specifying against orders on the books of the corporation, and when it announced a reduction in prices about the middle of April, and the closing of contracts for a substantial tonnage by the independents when they advanced their prices to meet those of the leading interest at the same time.

Of the steel output in May, 1,047,810 tons were open-hearth, 216,497 tons Bessemer and 1,543 tons other grades. The production of iron during May amounted to 1,221,221 tons, as against 1,193,041 tons the month preceding. April's iron output was the smallest in almost 13 years, or since July, 1908, when it amounted to 1,218,129 tons.

Thirteen furnaces were blown in in May, and seven were blown out, a net loss of six, which left 90 active furnaces at the beginning of the current month. Dur-

ing the past eight months 229 furnaces have been blown out.

The ferromanganese and spiegeleisen output in May fell to the lowest figure since the war, the production amounting to only 9,232 tons, which compares with 24,310 tons for both alloys in April. The country's production of coke is less than it has been in many years and all of the 19,600 ovens of the fuel subsidiary of the United States Steel Corporation are cold.

Steel.

The average of the present prices for finished steel is 60 per cent above the pre-war level, while iron is still about 100 per cent higher.

Every effort has been and is still being made by the steel makers to reduce prices still further or to a point where the consumer can commence buying and feel assured that he is not putting raw material into a product at a higher price than his competitor will be able to obtain it for at a later date.

The latest stumbling block yet encountered is the abnormally high freight rates and so far this difficulty has proved insurmountable.

During the war railroad labor received wage increases that totaled 136.2 per cent, and yet the reduction that has just been granted after months of persuasion amounts to only 12 per cent and leaves the rate still 107.7 per cent higher than it was in 1914. And the cost of living at the present time is only 63.6 per cent higher than in 1914 according to the Industrial Conference Board.

The railroads are in dire need of equipment and rails for replacements and steel for repairs and yet are unwilling to pay the present prices for steel.

The iron that goes into this steel is composed of between four and five tons of raw materials and fuel that have to be assembled from various places to a common point, and one can readily see the importance that freight rates play in this assembly.

Copper.

Dullness continues to be the most prominent feature in the copper trade and the tendency of prices is downward.

At the same time there is no pressure to sell by producers, either large or small, but second hands and operators, who must specify against June contracts are ready to make concessions to make quick sales. Buyers, however, are reluctant to make new commitments.

Consumers are taking less than usual and only when absolutely necessary and yet it is a foregone conclusion that prices will be up in the not distant future and that no matter what happens they can not ease off much, if any, from the present low level.

The break in exchange, the drop in the London market and the temporary discontinuance of purchases from abroad that has characterized the market during

the past two weeks or more have been the worst that could happen in an already bad situation and yet prices held remarkably well, easing off only about a quarter of a cent in all.

The rapidly improving statistical position of this metal ought to encourage consumers to purchase against future requirements, but no signs of any such movement are in sight.

Tin.

A reaction from the decline in prices of tin for the past three weeks occurred Monday of the present week, and gains of from three-eighths to half a cent a pound were recorded in the domestic market, while the London quotations advanced from 5s to £2 10s.

Sterling exchange was unchanged over the week-end at \$3.73½, and the equivalents of the London prices advanced from 20 to 35 points.

During the month of March tin advanced in London from £148 to £165, and by May 23 had risen to £184 after several reactions.

Since then it dropped to £167 5s, or £16 15s. This was due to the pressure brought to bear on over-extended longs by the drop in sterling exchange, which amounted to practically 27 cents.

Early in January of the current year Straits was quoted in London as high as £210 10s, and the last break in the market has not yet taken the price to the level at which it was stopped on the previous break.

Chicago prices advanced ¾ cent per pound, making the present quotations 32⅞ cents per pound for pig tin and 34⅞ cents per pound for bar tin.

Lead.

The leading interest has announced a reduction in the price of lead from 4.75 to 4.50 cents a pound for both New York and St. Louis. It is understood that this company was quietly taking orders at this price as early as last Friday.

Over the week end the New York selling price in the outside market broke 20 points to 4.40 cents a pound and St. Louis deliveries 32½ points to 4.12½ cents.

Chicago prices broke 25 points. American pig lead declined from \$.495 per hundred pounds to \$.470 and bar lead from \$.570 to \$.545 per hundred pounds.

Solder.

No further decline took place in Chicago solder prices. Quotations now in effect are: Warranted, 50-50, per hundred pounds, \$21.00; Commercial, 45-55, per hundred pounds, \$19.50; and Plumbers', per hundred pounds, \$18.25.

Zinc.

Chicago prices of slab zinc fell off 5 points during the week, making the quotation now \$.490 per hundred pounds.

There are still large stocks which are being firmly held off the present market for higher prices, but the liquidation of weakly held stocks has increased of late with the attendant softening of the market.

Although the present prices represent new lows for as far back as 1908 the corresponding decline abroad has not been great enough to stand the import duty and compete in this market.

Prices in the domestic market are 10 per cent below

the average so far this year and that these low quotations have not stimulated demand from traders and consumers alike is mute testimony of prevailing conditions.

The output during April fell below the shipments, small as they were. The figures for May are not yet published, but they will probably show a similar proportion, as during the past few weeks there has been still further curtailment of production.

Sheets.

Demand for sheets is poor all along the line. In general demand from jobbers is hardly as poor as demand from manufacturing consumers.

Jobbers are having some distribution right along and as their stocks were fairly well liquidated some time ago, in most cases, the jobbers have to buy from time to time, if only to piece out.

The demand from the automobile trade is very light. There is a fresh slump in the sale of automobiles and the factories have been more careful this time to avoid getting caught with large stocks of cars or of raw materials.

Some of the old stocks in sheets have not been entirely liquidated. Reductions made in prices of a number of cars June 1st have not increased sales to any material extent, and in some quarters in the automobile trade this is interpreted as indicating that the public expects further reductions in these cars. Reductions in some other cars are expected July 1st.

Tin Plate.

The leading interest states that its regular price on stock tin plate is \$6.25, the same as on production tin plate.

Some tin plate out of stock, in undesirable sizes, might be offered at much less than \$6.00, but there is no general price on stock plate under the \$6.25 figure, in the case of the leading interest.

With the independents the policy is different at different mills, but the more common practice is to price stock plate at \$5.75, the tin plate being invoiced at the size desired by the buyer.

Some sellers will not make as much concession as this from the \$6.25 price on any of their stock.

Old Metals.

Wholesale quotations in the Chicago district which should be considered as nominal are as follows: Old steel axles, \$13.50 to \$14.00; old iron axles, \$24.00 to \$25.00; steel springs, \$12.50 to \$13.00; No. 1 wrought iron, \$10.00 to \$10.50; No. 1 cast, \$13.00 to \$13.50; all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 7 cents; light brass, 4 cents; lead, 3 cents; zinc, 2 cents; cast aluminum, 10 cents.

Pig Iron.

Pig iron is still in a bad way and the market continues to drag bottom as witnessed by the almost futile efforts of buyers to establish lower base quotations.

Makers are showing less and less concern over small orders and it takes large contracts to invite much competition in the way of cut prices today.

Occasionally a sale will be made under the market and then the next sale will be at the higher figure showing a rebound from the new low.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS		HARDWARE		Scratch.		BEVELS, TEE.	
PIG IRON.		ADZES.		No. 18, socket Handledper doz. \$ 2 50		Stanley's Rosewood handle, new listNets	
Northern Fdy. No. 2.....\$22 20		Carpenters'.		No. 344 Goodell- Pratt, list less.....35-40%		Stanley iron handle.....Nets	
Southern Fdy. No. 2.....26 67		Plumbs.....Per doz. \$29 00		No. 7 Stanley...per doz. \$ 2 25		BINDING CLOTH.	
Lake Sup. Charcoal.....37 50		Coopers'.		AXES.		Zincd55%	
Malleable22 20		Barton'sNet		First Quality, Single Bitted, 3 to 4 lb., per doz. 16 50		Brass40%	
FIRST QUALITY BRIGHT TIN PLATES.		White'sNet		First Quality Double Bittedper doz. 22 50		Brass, plated.....60%	
Per Box		Railroad.		BROAD.		BITS.	
IC 14x20 112 sheets \$12 50		Plumbs.....Per doz. \$30 00		Plumbs. Can. Pat., 6-lb. 65 00		Auger.	
IX 14x20.....13 60		AMMUNITION.		Single Bitted (without handles).		Jennings Pattern.....Net	
IXX 14x20.....15 20		Shells, Loaded, Peters.		Plumbs, 4½-lb.....19 50		Ford Car.....List plus 5%	
IXXX 14x20.....16 60		Loaded with Black Powder, 18%		Double Bitted (without handles).		Ford's Ship....." 5%	
IXXXX 14x20.....18 10		Loaded with Smokeless Powder18%		Plumbs, 4½-lb.....23 50		Irwin35%	
IC 20x28.....25 00		Winchester.		BAGS, PAPER, NAIL.		Russell Jennings.....plus 20%	
IX 20x28.....27 20		Smokeless Repeater Grade,		Pounds .. 10 16 20 25		Clark's Expansive.....33¼%	
IXX 20x28.....30 40		Smokeless Leader Grade,		Per 1000..\$5 00 6 50 7 50 9 00		Steer's " Small list, \$22 00..5%	
IXXX 20x28.....33 20		Black Powder.....10 & 4%		BALANCES, SPRING.		" " Large " \$26 00..5%	
IXXXX 20x28.....36 20		U. M. C.		Slight Spring.....Net		Irwin Car.....35%	
COKE PLATES		Nitro Club.....18%		StraightNet		Ford's Ship Auger pattern CarList plus 5%	
Cokes, 180 lbs.... 20x28 \$14 20		Arrow18%		BARS, WRECKING.		Center10%	
Cokes, 200 lbs.... 20x28 14 50		New Club18%		V. & B. No. 12.....\$0 45		Countersink.	
Cokes, 214 lbs....IC 20x28 14 85		Gun Wads—per 1000.		V. & B. No. 24.....0 75		No. 18 Wheeler's...per doz. \$3 25	
Cokes, 270 lbs....IX 20x28 16 65		Winchester 7-8 gauge 10&7½%		V. & B. No. 324.....0 80		No. 20 " " " 3 00	
BLUE ANNEALED SHEETS.		" 9-10 gauge 10&7½%		V. & B. No. 30.....0 85		American Snailhead " 1 75	
Base.....per 100 lbs. \$4 13		" 11-28 gauge 10&7½%		V. & B. No. 330.....0 90		" Rose " 2 00	
ONE PASS COLD ROLLED BLACK.		Powder. Each		BASKETS.		" Flat " 1 40	
No. 18-20.....per 100 lbs. \$5 20		DuPont's Sporting, kegs..\$11 25		Clothes.		Mahew's Flat " 1 60	
No. 22-24.....per 100 lbs. 5 25		" ¼ kegs 3 10		Small Willow...per doz. \$15 00		" Snail " 1 90	
No. 26.....per 100 lbs. 5 30		DuPont's Canisters, 1-lb.. 56		Medium Willow. " 17 00		Dowel.	
No. 27.....per 100 lbs. 5 35		" ¼ kegs 5 75		Large Willow... " 20 00		Russel Jennings.....plus 20%	
No. 28.....per 100 lbs. 5 40		" canisters 1 00		Galvanized. 1 bu. 1½ bu.		Gimlet.	
No. 29.....per 100 lbs. 5 50		Hercules "E.C." kegs.....22 50		Per doz.....\$16 08 \$18 72		Standard Double Cut Gross \$8 40	
GALVANIZED.		Hercules "Infallible," 25-can drums22 00		BEATERS.		Nail Metal Single CutGross \$4 00—\$5 00	
No. 16.....per 100 lbs. \$5 65		Hercules "Infallible," 10-can drums9 00		Carpet. Per doz.		Reamer.	
No. 18-20.....per 100 lbs. 5 80		Hercules "E.C." and "Infal- lible," canisters.....1 00		No. 7 Tinned Spring Wire..\$1 10		Standard Square.....Dox. \$2 50	
No. 22-24.....per 100 lbs. 5 95		Hercules W. A. 30 Cal. Rifle, canisters1 25		No. 8 Spring Wire Cop- pered1 50		American Octagon... " 2 50	
No. 26.....per 100 lbs. 6 10		Hercules Sharpshooter Rifle, canisters1 25		No. 9 Preston.....1 75		Screw Driver.	
No. 27.....per 100 lbs. 6 25		Hercules Bullseye Revolver, canisters1 00		EGG. Per doz.		No. 1 Common.....30	
No. 28.....per 100 lbs. 6 40		ANVILS.		No. 50 Imp. Dover.....\$1 10		No. 26 Stanley.....75	
No. 30.....per 100 lbs. 6 90		Solid Wrought...23 & 23½c per lb.		No. 102 " " Tinned 1 35		BLADES, SAW.	
BAR SOLDER.		ASBESTOS.		No. 150 " " hotel 2 10		Wood.	
Warranted,		Paper up to 1/16.....10c per lb.		No. 10 Heavy hotel tinned 2 10		Disston 30-in.	
50-50.....per 100 lbs. \$21 00		Millboard 3/32 to ¼..10½c per lb.		No. 13 " " " 3 30		Nos.6 66 26	
Commercial,		Corrugated Paper (250 sq. ft.).....\$6.50 per 100 lbs.		No. 15 " " " 3 60		\$9 45 \$10 05 \$9 45	
45x55.....per 100 lbs. 19 50		Rollboard11c per lb.		No. 18 " " " 4 50		BLOCKS.	
Plumber's.....per 100 lbs. 18 50		AUGERS.		Hand.		Wooden20%	
ZINC.		Boring Machine.....40@40&10%		8 9 10 12		Patent20%	
In Slabs\$4 90		Carpenter's Nut.....50%		Per doz.\$11 50 13 00 14 75 18 00		BOARDS.	
SHEET ZINC.		Hollow.		Moulders'.		Stove. Per doz.	
Cask lots11c		Bonney's.....per doz. \$30 00		12-inchPer doz. 20 00		24x24\$13 65	
Less than cask lots...11¼-11½c		Post Hole.		BELLS.		26x2616 05	
COPPER.		Iwan's Post Hole and Well...30%		Call.		28x2818 85	
Copper Sheet, mill base...\$0 21¼		Vaughan's, 4 to 9 in.per doz. \$14 00		3-inch Nickered Rotary Bell, Bronzed base...per doz. \$5 50		30x3021 30	
LEAD.		Ship.		Cow.		33x3325 50	
American Pig\$4 70		Ford'sNet		Kentucky30%		36x3630 50	
Bar5 45		AWLS.		Door. Per doz.		Wash.	
Sheet.		Brad.		New Departure Automatic \$7 50		No. 760, Banner Globe (single)per doz. \$5 25	
Full coils.....per 100 lbs. \$3 25		No. 3 Handled...per doz. \$0 65		Rotary.		No. 652, Banner Globe (single)per doz. 6 75	
Cut coils.....per 100 lbs. 8 50		No. 1050 Handled " 1 40		3 -in. Old Copper Bell... 6 00		No. 801, Brass King, per doz. 8 25	
TIN.		Patent asst'd, 1 to 4 " 85		3 -in. Old Copper Bell, fancy8 00		No. 860, Single—Plain Pump6 25	
Pig tin32½c		Harness.		3 -in. Nickered Steel Bell 6 00		BOLTS.	
Bar tin34½c		Common1 05		3½-in. Nickered Steel Bell 6 50		Carriage, Machine, etc.	
		Patent1 00		Hand.		Carriage, cut thread, ¼x6 and sizes smaller and shorter50 & 5%	
		Shouldered1 60		Hand Bell polished List plus 15%		Carriage sizes larger and longer than ¼x6.....50%	
		Patented75		White Metal....." 15%		Machine, ¼x4 and sizes smaller and shorter.....60%	
				Nickel Plated....." 5%		Machine, sizes larger and longer than ¼x4....50 & 10%	
				Swiss10%		Stove70%	
				Miscellaneous.		Tire50 & 10%	
				Church and School, steel alloys30%		Mortise, Door.	
				Farm, lbs.. 40 50 75 100		Gem, iron.....5%	
				Each\$3 00 3 75 5 50 7 25		Gem, bronze plated.....5%	